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PUBLISHER
Stephen D. Urette

EDITOR
Raymond E. Hoy

TECHNICAL EDITORS

Chris Chan
Don Emmons
Bob Hoepfner
Harry Bradley
Phil Willen
Charles Eckles
George Siposs
Floyd Manly
Jose Rodriguez, Jr.
Pierre Perrin
Dennis Elliott

ART DIRECTOR
Chuck Queener

DELTA MAGAZINES, INC.
ARGUS PUBLICATIONS GROUP

ADVERTISING DIRECTOR /
MARVIN PATCHEN

131 SOUTH BARRINGTON PLACE
WEST LOS ANGELES, CALIF., 90049
PHONE: 213/332-0186

PRODUCTION MANAGER /
ANKO JANSEN

ADVERTISING MANAGER /
GEORGE ELLIOTT

MODEL CAR & SCIENCE

Vol. 6, Number 4

April, 1968

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ON THE COVER—Who else could have built a car like that—and shot the picture too? Don Emmons, that's who!

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model mail



"SCIENCE" DESCRIBED

I have just finished reading
"Model Mail" in your February
issue, and I'm really mad at those
two "nuts" who complained about
MC&S printing articles on rock-
etry and plane building. I'd like
to know what they think the word
"Science" in your magazine title
means. Webster defines it: "Sys-
tematized knowledge derived from
observation, study, and experi-
mentation." If they don't know
that everything you print in this
magazine falls under this single
word, then I feel they're not edu-
cated enough to read your maga-
zine!

Carey Dvorak
Panorama City, Calif.

Carey, you're our kind of
reader! The general tone of the
mail that we get now, sounds just
like yours. More and more read-
ers are finding out that the model
rocketry and airplane articles
aren't hurting them a bit. In fact,
many of them have written in to
say they really enjoy the articles,
even though they're basically
model car builders. Variety is the
spice of life. Those readers who
predicted our model car coverage
would fall off when we started
running articles on other types of
models, have found, to their sur-
prise and relief, that this never
happened. We feel the quality of
our model car articles is better
now than it has ever been.

HERE'S A MODEL CAR BUILDER—AND ROCKETEER!

Your new format is cool! I like
to build model cars as well as the
next guy, but I would get pretty
bored with it all if I didn't have
some variety. One of your new
features, model rocketry, is very
interesting. I found out about
model rockets about a year ago.
I've been hooked on it ever since,
but I can still find time for model
cars. Rocketry has really caught
on down here. We have a club
(I'm treasurer) called the "Globe-
master Rocket Club" and it's do-
ing well. Incidentally, much of the
experience I gained in building
model cars, helped me to con-
struct good rockets! I have around
10 rockets, and have made close
to 50 launchings.

Our club is in need of a multi-
ple launcher. Do you have any
ideas you could pass on to me?
Keep those rocket features com-
ing, and keep up the good work!

David Morrison, Treasurer
The Globemaster Rocket Club

Thanks for your vote of confi-
dence, Dave. Watch next month
for our new model rocket column,
written by Mike Poss. Mike will
be giving the straight scoop on
this exciting action hobby. We'll
see if he can't whip up something
for you rocketeers, on multiple
launchers.

CLUB NAMES, ADDRESSES WANTED

MC&S is compiling a complete
list of clubs, which we will run in
a feature issue of MC&S. Send the
name and address of your model
slot car club, or model rocket club
(or for that matter, any other type
of club) to me. You needn't list
the name and address of the mem-
bers. If your club needs new mem-
bers, this will be a great way to
get some free publicity.

Raymond E. Hoy, Editor
MODEL CAR & SCIENCE
131 Barrington Place
Los Angeles, Calif. 90049

THE ADDRESS OF NAMRA, PLEASE

I want to join NAMRA. Please
give me the address, so I can con-

tact them.

Jon Hall
Philadelphia, Pa.

NAMRA, which stands for "North American Miniature Racing Association" is the leading, and only national slot racing association in the country. You can contact them by writing to: NAMRA, P.O. Box 578, Times Square Station, New York City, N.Y. 10036. They'll send you a brochure on how to enter, but please, to expedite your request, include a long, self-addressed, stamped envelope.

Incidentally, the March, 1968 issue of *Car Model* magazine had an incorrect report in one of the columns (page 66), stating that *Car Model* had been selected as the official voice of NAMRA. The fact is, *Model Car & Science* has been selected as the official voice of NAMRA, and we will also be sponsoring the entire 1968-1969 NAMRA racing season! It is unfortunate that *Car Model* jumped the gun on this story, and we as-

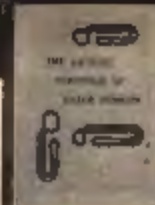
sume they will print a retraction in their next issue. Both *Car Model* and *Model Car & Science* had made offers to the NAMRA people. Evidently, CM felt NAMRA would choose their magazine, and went ahead and printed the story on that assumption, which proved to be incorrect.

MORE TECHNICAL DATA PLEASE

You've got a great mag fellas, but it could use more technical information, I think. A lot of us are pretty serious about this business, you know!

Frederic Jansen
Chicago, Ill.

We know you are, Fred, and we're doing something about it. Next month, Tom Malone, noted motor authority, joins the good guys (us) with a regular column. Tom is a no-nonsense guy. In fact, we'll give you a preview of his work in this issue, with the article "Magnetic Field Interpretation" which really tells you what's hap-



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pening inside that motor case! You'll be getting a lot more of this type of article in the future, so hang in there!

WHAT HAPPENED TO THE CMRA COVERAGE?

A short while back, you mentioned that your magazine would be sponsoring the CMRA races, in Southern California. Are you still going to go through with that?

Alex Jacobson
San Francisco, Calif.

Yes and no, Alex. We covered the CMRA race held at Rolling Hills Raceway, in Torrance, Calif., in the March issue of MC&S. Then, a beautiful thing happened! A new group was formed in Southern California, called the U.S.R.A. which stands for "United Slot Racers Association." This group is comprised of every top driver in the Southern California area. Check this issue for a complete story on this association. The U.S.R.A. is strictly for drivers who race on commercial raceways. MC&S was approached by Gene Hustings, spokesman for the group. Gene ran all of the Car Model L.A. Championship races last year. This year, he and his group asked MC&S to sponsor the series instead, which we agreed to. You'll be seeing full coverage of these races, jointly sponsored by *Model Car & Science*, and the U.S.R.A. group. The series should be one of the most competitive ever, and we intend to cover it the way it should be done.

Anyway, to answer your question more accurately, it now appears possible that CMRA and the U.S.R.A. group will merge, in which case *Model Car & Science* will be sponsoring the entire shooting match! Watch for it. First race will be covered next month, in MC&S.

NEEDS HELP ON MOTOR REWINDING

Why don't you run a good article on rewinding motors, written so the average goon (like myself) can read it. I've tried to wind a motor several times, but no luck. It's getting expensive—and plenty disgusting!

Phil Remington
Santa Ana, Calif.

We have run several good articles in the past, Phil. And Tom Malone's new column, beginning next month will help. However, in the meantime, you could send \$2.00 to Rayline, PO Box 1738, Thousand Oaks, Calif. 91360, for their new book "The Complete Book of Motor Rewinding" which really covers the subject thoroughly. It's packed with pictures, charts, and valuable info. In addition, they have another book which complements the motor book, titled "The Complete Book of Scratch Building" which also sells for \$2.00. Include 50¢ handling. They're both excellent books for the guy who wants to go fast. 1/32 and 1/24 motors and chassis are covered.

**NEXT MONTH IN MC&S
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Ken Eberlin

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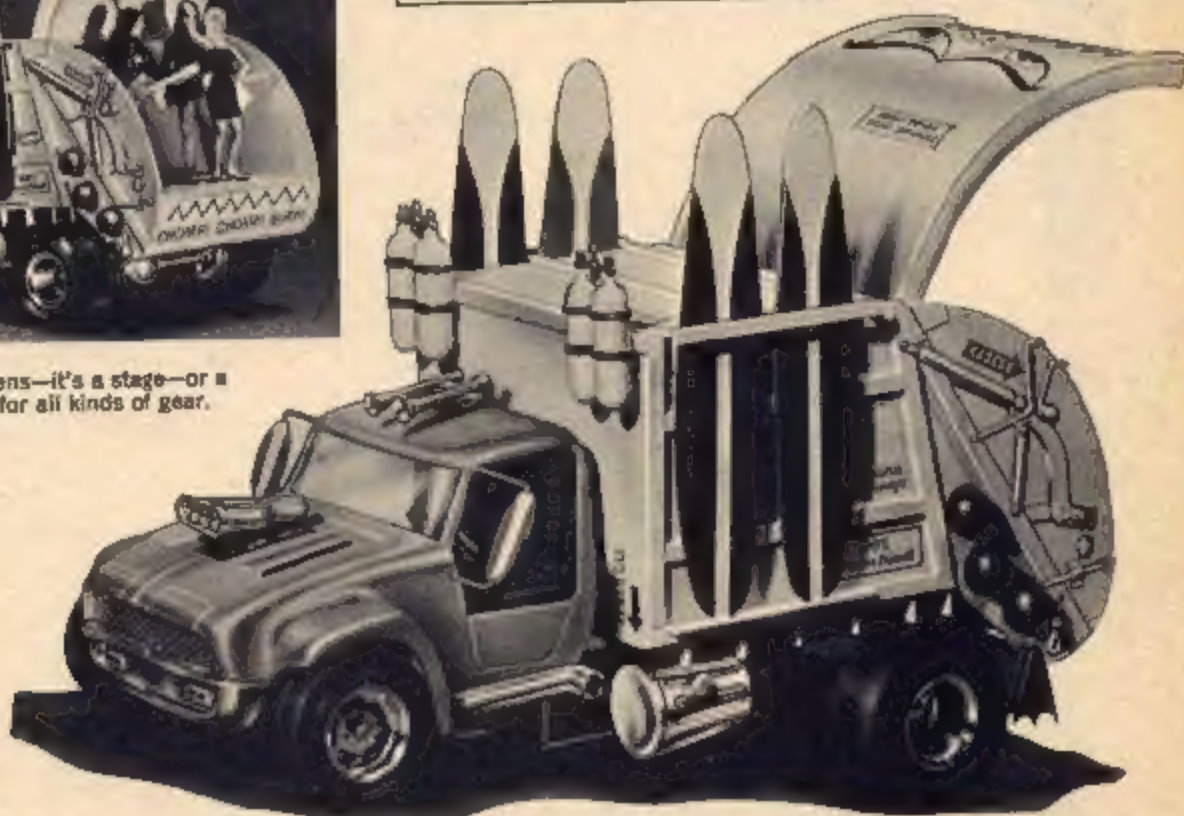
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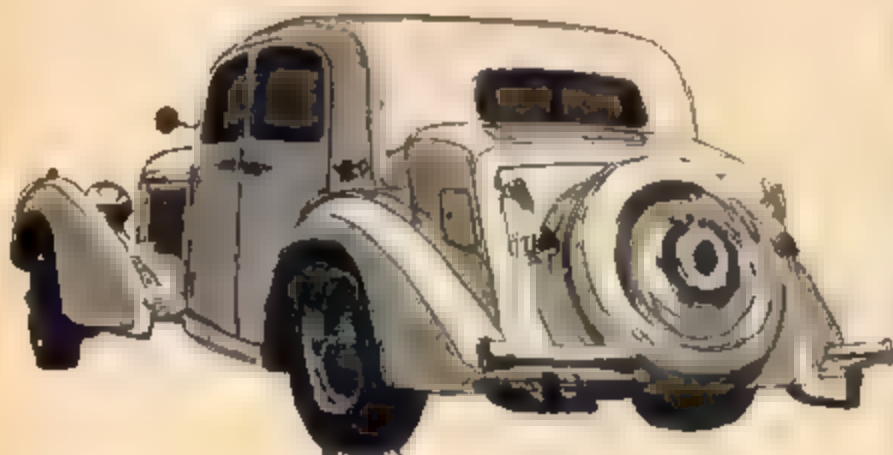
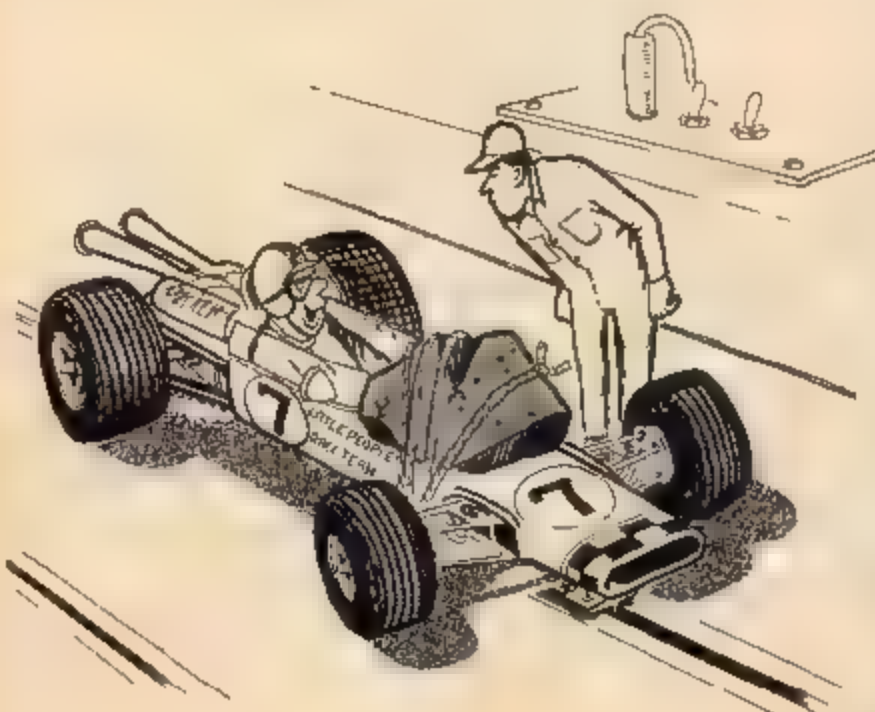


Illustration by
Ken Eberts



"Well the front end float has stopped. In fact,
you could say it's rock steady."



APRIL, 1968

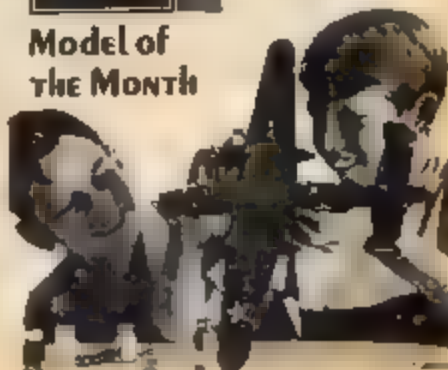
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WIRE THAT MILL



Here are the A-B-C's of engine wiring – the right way!

Text and photos by DON EMMONS

In my opinion, a model is not finished until it has been completely detailed. In reference to detailing, I mean chassis, interior, and most importantly, the engine. For dragsters and the like, engine detailing is a **MUST** as this is as important as the body itself. The one exception to the rule of complete engine detail is found on stock bodied models, and is up to the builder as to how much work he wants to put into it. If the model will set on a shelf, the engine will probably never be seen and only

you will know its condition. On the other hand, if it's going into a model contest, naturally you'll want to do a first-rate job. Then the more detailing, the better your chances in competition. This is true only if you detail it to look **EXACTLY** like a real engine, thereby using supplies, such as thread, wire, and plastic tree, which are in proper scale. The improper use of some of these will hurt the chances of the model more than if it's left plain. A good example of this would be the use of

heavy thread for spark plug wires and fuel line hose. We all know that the spark plug wires are much smaller than the hose used for fuel lines. Regular sewing thread works well for the plug wires and is available in many colors. The same thread is excellent for the copper gas and brake lines as the size is about the same as plug wires. These same lines and wires may also be duplicated from small gauge wire. When using the thread, remember to first pull it through beeswax (or paraffin) to remove the fuzziness.



This is the main supply of materials I use for wiring a 1/25th scale engine: Various sizes of sewing thread, small gauge copper wire, small gauge plastic coated wire, a pair of small sharp scissors, and tweezers.



The only complaint about using thread is its fuzzy appearance. This can be eliminated by pulling the thread through a piece of wax. This gives it a smooth finish.

Cut all the threads for the spark plug wires longer than necessary, and glue them to the cap. Put a small amount of glue on the end of each thread. A clothespin is ideal for holding small parts.



Use strips of file card to duplicate the blocks used to hold plug wires on real cars. Use a pin to punch holes for thread. Place holes as close together as possible.

Paint file card blocks, and thread the plug wires through each hole in the block. The blocks can be made with different numbers of holes as some real cars use two or three blocks on each side of the engine.



To give the mag that last bit of detail, put 8 small dots of paint around the outside edge of the top. This simulates firing order on some real mags. For further detail, paint the low area of blower.



Aluminum tubing used for injector stacks looks much better than the stock plastic ones. The end of the tubing should be trimmed to cut down the thickness.



Heavy thread is used for all fuel lines, and very fine gauge piano wire is used for throttle linkage. Aluminum tubing is used here for injector stacks.

Piano wire can be used for making up other small parts, like the oil dip stick shown being fitted to this engine. Chrome carburetor scoops have been drilled out and painted with flat black.





MODEL ROCKETRY

THE TWO-STAGE TECHNIQUE

What you need to know about staging a model rocket

By Mike Poss

A more effective way of getting your model rocket really up and out of sight is to "stage" it. This is done by using two or more engines, one atop another, in your special model. The top stage is known as the sustainer (it contains the parachute or streamer recovery system), and the lower stages are the boosters. What two- or multi-staging actually does for a rocket is to divide the total fuel carried into several engines which can be ejected as their fuel is used. With this system, the sustainer engine has much less weight to carry and therefore reaches a higher altitude.

So much with the explanations. Using a Centuri "Micro-Probe" kit (KB-22, \$2.50) generously supplied by the West L.A. Bike

Shop, we are going to cover the construction and launch procedures for a two-stage model. If you too would like to get a Micro-Probe or the full story on all of Centuri's complete line of model rocketry supplies, send 25¢ for one of their beautiful catalogs to: Centuri Engineering Co. P.O. Box 1988, Phoenix, Arizona 85001.

You shouldn't have any trouble assembling the Micro-Probe. The instructions included with the kit are complete and easy to follow, so we'll go over only a few of the important steps in construction. But before we start, you should be aware of several unique and time-saving features incorporated into the Micro-Probe before it leaves the Centuri plant. To begin with, the model's fin patterns

are already stamped onto the $\frac{1}{32}$ inch thick balsa fin stock. You don't have to transfer any patterns onto the wood or worry about arranging the grain the wrong way for a fin. Also, the engine block, staging coupler, and booster retaining ring are already positioned and glued into place.

A few final words to the wise. Do not use B or C class engines for your first flight of the Micro-Probe and only fire the bird in a very large open field. You may lose it because of the high altitude it will reach. Don't fly the 'Probe or any other model rocket in windy weather, and *always* be careful when firing model rockets. Keep in mind that the hobby is only as safe as *you* make it!

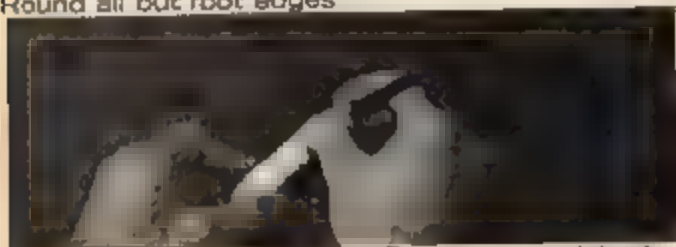
Without further ado, on with the assembly.



You'll need white or Centuri model rocket glue, an X-acto knife, extra-fine and fine sandpaper, scissors, and a little bit of time and effort.



Using the fine grade paper at first, sand all fins to same shape. A sanding block helps to do this. Round all but root edges.



Cut out Fin Marking Guide, wrap around body tube, and mark tube for fin positioning. Connect top and bottom corresponding marks after removing guide.

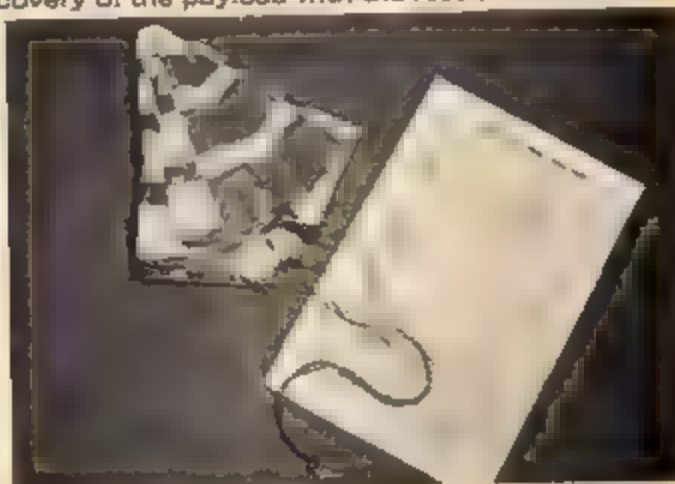
Glue fins to tubes as shown. Hold until a good bond is obtained. Then run a line of glue into each fin-tube joint and smooth it out with your finger. To check fin alignment, use handy Fin Alignment guide supplied with kit. Make sure your fins are in correct arrangement.



Model rocketry's mascot Snoopy helps to illustrate that shock cord mounting can be done by the gauze method or the cut-tube method (shown in the instructions). Tweezers will help in this step. Glue the mount well.



Insert the metal screw eye into the base of the balsa adapter, remove it, squirt some glue into the hole, and reinsert the eye. This will insure recovery of the payload with the rest of the rocket.



Assemble the 12 in. dia. parachute according to instructions from the kit. An interchangeable chute can be had by using a snap swivel at shroud vertex.

With recovery system attached to the payload section, here's the Micro-Probe minus paint.





To get smooth balsa finish, brush on three coats of Balsa Fillercoat, and sand with extra-fine paper in between coats. Top this off with a coat of clear dope. Keep these paints out of the tube-fin joints.



Krylon spray enamel is great for final finishing. Do the job in 2 or 3 light coats, not thick ones. Use bright colors that will aid flight tracking. Let dry thoroughly before handling. Tool is made from wood dowel and old engine casing. Finally, the finished product including decal trim. The bird is now ready for engines and flight.



Next step is launch prep. Tape nozzle end of sustainer engine to ejection end of booster motor using one layer of thin cellophane (scotch) tape.

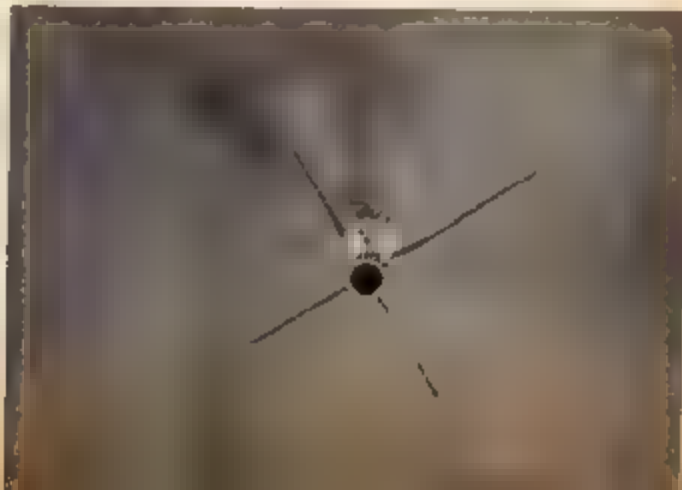


Now put several layers of masking tape on the nozzle end of the sustainer engine and insert into the body so it contacts the engine block and cannot be easily pulled or twisted out.



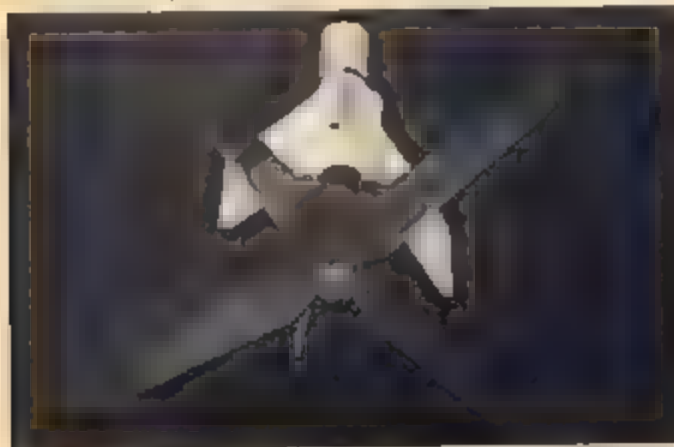
Masking tape goes on the lower end of the booster engine also. Insert the engine through the top end of the booster stage until you force it against the retainer ring.

An end view of your 'Probe should now look like this. Fins should be arranged accordingly during stage link-up.





Some Centuri Protector Wadding (PW-19) between the engine and chute will make sure that the recovery system will work properly.



Once the recovery system has been installed, arm the booster engine with an igniter. Secure it with a BB size wad of kleenex tissue. Slide the rocket's launch lug onto your launcher's $\frac{1}{8}$ inch dia., 36 inch long launch rod. Recommended launchers are Centuri's LIA-50, LIA-77, or equivalent.



Roll up the parachute (see assembly instructions), insert it on top of the wadding, insert shock cord, and close off the forward end of the tube with the payload section.



Attach firing clips to the igniter leads. Don't let the clips touch each other or any other metal or you'll short the firing circuit. Now you're ready to fire! Ignition! And the Micro-Probe streaks skyward. A special charge in the booster engine (such as an A-8-0) will ignite the sustainer when its fuel is spent. The booster will tumble back to earth.



SOME "CLEAR" IDEAS FOR MODELERS

By
Robert
Schlercher

One of the keys to better model building is knowing when and how to use clear protective spray paints. Here's how.

Spraying a coat of paint that adds no color to a model may seem a bit foolish to most newcomers. It does seem a bit illogical if it can't be seen, or can it? In fact, you *do* see more than just colors. This is one of the reasons why clear, or uncolored paints are useful in improving the realism of any model.

A clear coating, applied over the final paint and decals, can dull the unsightly shine of an airplane model, or hide the edges of decals, or make many brush-painted finishes look as though they were spray-painted by a professional. The clear paints can also simplify the job of making more realistic models by allowing you to use high gloss (shiny) enamels, with their accompanying range of color selection and ease of application, for any painted surface.

Decals will stick better to a glossy surface than a dull one, conforming closer to the contours of the surface of the model. If you desire a flat (no gloss) finish, a final spray coat of a clear flat paint like Testor's "Dulcote" is applied after the decals are in place. On many models, the plastic is the color you wish to retain, but you aren't satisfied with the

realism of the model. It may have that hard-to-define "plastic look" of a toy. On a car model, you can apply the decals right on the plastic surface, touch-up paint the detail items like bumpers and name plates, and spray on a coat of Testor's "Glosscote" to kill that plastic look.

Model structure kits like grandstands, pit buildings, etc., will appear more lifelike with a sprayed on coat of "Dulcote" to give the look of a building weathered by the sun and rain.

The clear spray paints, like Testor's "Dulcote" and "Glosscote" are excellent protection for the finish of a model. Both paint and decals will stand more handling (or more racing car crashes) when they are protected with a coat of clear paint. Polished metal surfaces on a model car chassis or airplane should always be protected with a quick coat of Glosscote to preserve their shine. Wood or paper models will become permanently soiled from dust and handling if not protected with a coat of either Dulcote or Glosscote.

The Glosscote will produce the highest gloss and the smoothest finish if sprayed from 10 to 12 inches from the model in smooth,

even strokes, starting the spray just off the edge of the model and swinging the can to direct the spray at a constant rate across the model's surface. It is more difficult to tell how much clear paint is applied because there is no color change, so, to prevent runs and sags in the clear finish, spray on two or more thin coats.

The Dulcote produces the least gloss and the flattest finish if it is held about 18 to 24 inches from the model. Its spray, too, should be started off to one side of the model and consistently moved across the surface. Several coats of Dulcote are best, with each coat quickly "dusted" over the model and allowed to dry before dusting on the next coat.

Both Dulcote and Glosscote are lacquer-based paints. They can be safely applied over almost any paint or plastic. However, try each out on a scrap of the paint or plastic to be coated before spraying the completed model, to be certain the surface won't be damaged. As with most spray paints, the finish will be more perfect if both model and paint are heated to about 70 to 80 degrees by room temperature. Obviously, the model and spray area should be dust free as well.



Testor's "Dulcote" provides a spray-on way of dulling the surface of a model. "Glosscote" protects

and adds an evenly-distributed shine with spray-on ease



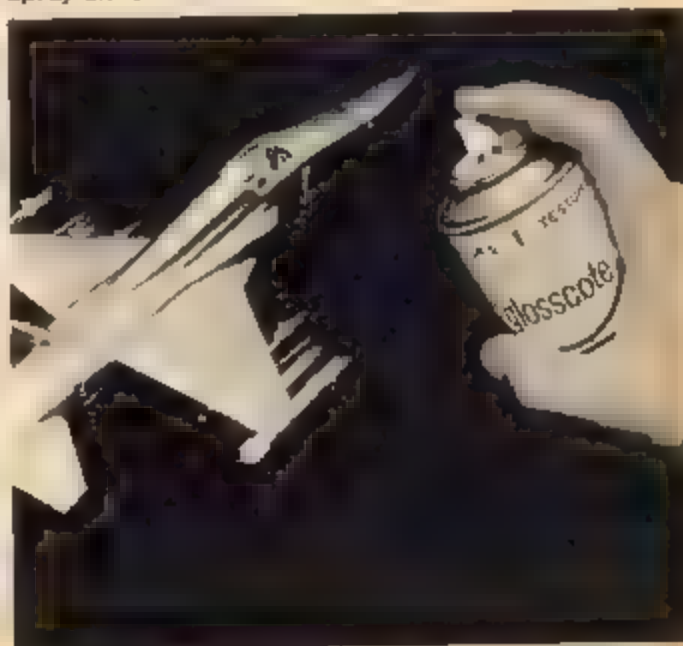
Decals and racing stripes can be protected with Glosscote. Mask off interior first.

Unpainted bodies (left) can be left unpainted with a coat of Glosscote to hide that plastic look, protect decals and details.



Colored tapes make striping easy to apply but just as easy to work loose. A coat of clear Testor's Glosscoat will protect them.

Protect the polish of metal or plated surfaces with spray-on Glosscote.





Driver and cockpit realism is improved if shiny finish is dulled with Dullcote.

Hand-painted camouflage markings are less obvious if blended into other surfaces and dulled with Dullcote.



Both high gloss finishes and decals can be made more realistic if sprayed with clear Dullcote.

Loose "dirt" and "grass" on miniature hill-sides will stay in place under an invisible coat of flat Dullcote.



Rivers, like this one running between two tracks, can be poured polyester resin or wrinkled plastic

with the "wet" protected by a sprayed-on coat of clear Dullcote.



Styling Tips

APPLYING PUTTY FOR A FLAWLESS APPEARANCE



Putty is applied to areas needing filling, molding, or contouring.



Putty can be worked into area by means of spatula tip, artist's spatula, or with the fingers.

There is no better way of filling seams or molding areas on a model than the use of putty. Many of you have had various problems with putty judging from the queries we receive each month on this subject.

AMT Body Filler Putty, Pactra Body Putty, Duratite Surfacing Putty, Rinsed-Mason's Green Stuff, and Duco Lacquer Spot In Glaze are all excellent for putty work on models. AMT Body Filler Putty and Pactra Body Putty are available from hobby shops for \$.29. Duratite Surfacing putty is available in hobby shops and hardware stores, price \$.45 per can. Green Stuff and Duco Spot In Glaze are obtainable from automotive parts houses and paint stores handling automotive paint supplies. Cost is \$1.35 for a one pound tube. This is enough putty to last a modeler a long time.

AMT and Pactra tubes have a spatula on the cap for the application of putty.

A small artist's spatula can be used for applying putty to the model. These are available from art supply stores priced from \$.35 to \$.45 depending on size. The spatula method is the best as it gives the smoothest application and reduces the chances of the formation of air bubbles.

When applying putty to model, be sure to apply an excess as it shrinks while drying. If you are using putty for contouring, spread it far enough back on the body to allow contoured area to flow smoothly.

Putty should dry for at least eight hours for best bond. After putty has thoroughly dried, work area to general contour with a file. When general shape desired is achieved, begin to sand area with #400 wet and dry sandpaper to semi-smoothness. Remember to sand carefully as putty is cut away faster than plastic by sandpaper. X-Acto's Contoured Sanding Blocks are a great aid to this problem. Cost is \$3.95 and they are available from most hobby stores. When area has been worked smooth by sanding apply a couple coats of primer to puttied area. This will bring out air bubbles, holes, pits or any other imperfections. Re-apply putty to fill imperfections, set aside to dry for eight hours. Wet sand area again, apply another couple coats of primer to check finish. You may find that still another application of putty is needed. Remember that time and patience are the most important items in the building of a professional looking model. When area is free of imperfections wet sand to final finish. Primer entire car and ready it for paint. Painting tips in the Feb. MCS article "Painting for Prizes" will prove helpful in this operation.

Remember, there is no mystery about puttying -- it takes time and careful workmanship, as does everything in modeling.

Area is then primed to check for imperfections. Operations may have to be done several times to obtain flawless finish.



When putty has dried at least eight hours, it is worked with a file to general contour.

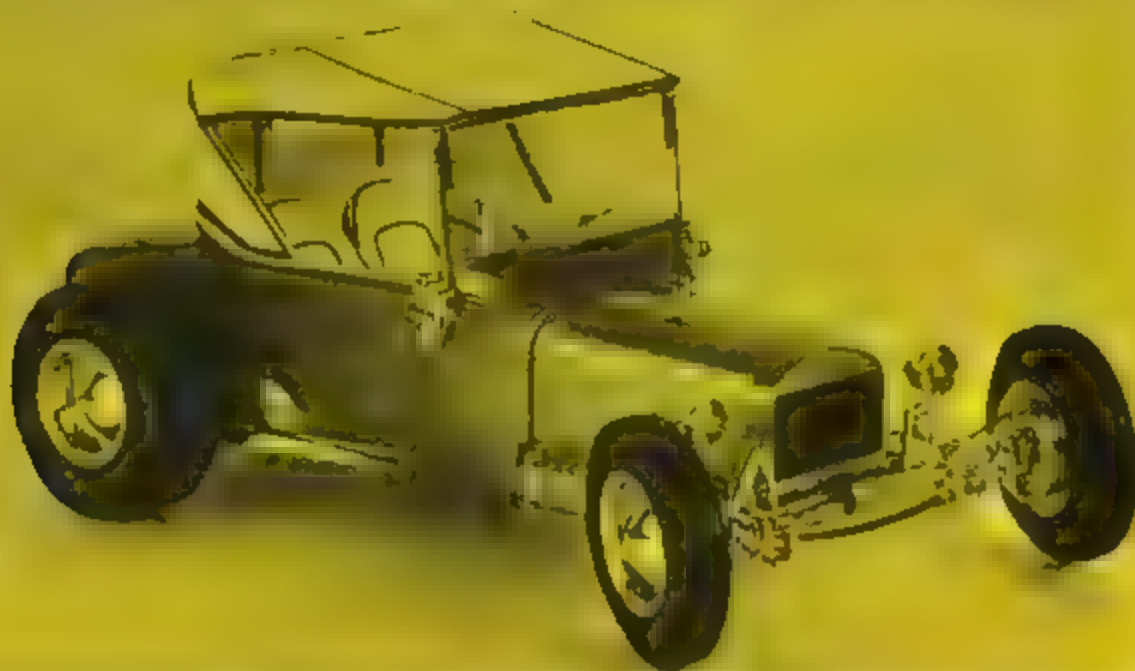


After general contour is achieved, model is wet sanded to semi-smoothness.



What do you get when you cross a hot rod "T" with a Volkswagen? You guessed it baby! You get a .

VOLKSROD!



By Dennis Doty

In case you haven't heard, there is a new trend in hot rods. They are called VolksRods, and as the name implies, they are a combination of a hot rod "T" and the popular Volkswagen. VW parts are used for the engine, rear suspension, and sometimes the front suspension and floor pan. I think this type of rod will become very popular, as a completed rod wouldn't mean a really large money investment. And with just minor engine changes, or a complete engine swap, it would really be a hot car.

However, if you can't scrape up the \$1,000 needed to build a real one, a model of one will cost you a lot less. It really isn't hard, and seeing as this is such a new trend, you will be among the first to own such a model.

For this article, you will need two basic kits, a Little "T" and a Futurista; both kits are made by Monogram Models. You will also need a hood from a model of an early 1930's car. Any hood of this type can be adapted to work. You could also scratch build a hood out of balsa wood. If you modify a hood as described in the captions, it is always best to keep

a damp cloth in back of the work area you are molding. This will keep the plastic from warping and getting too soft. This method should be used when heat molding plastic.

Using bell wire for the new exhaust headers makes this job much simpler. Make all bends around a piece of large tubing or other round object. I also found it necessary to flatten the end of the $\frac{1}{8}$ " tubing to get it to accept the two pieces of wire.

When inserting the headers in the engine, it will be necessary to spread them slightly. Carefully epoxy the bell wire to the tubing, then paint them the color of your choice. Epoxying the headers to the engine isn't really necessary. The left header is held in place by the generator, and wire wrapped around the header, then the muffler mount on the engine, will hold the right header in place.

The stock Futurista wheelbase is much too narrow for our purpose. To extend it, cut two pieces of $\frac{1}{8}$ " tubing $\frac{1}{2}$ " long. Epoxy these pieces to the Futurista's axles. Then drill the holes in the rear wheels and backing plates out to $\frac{1}{8}$ ". The wheels and back-

ing plates will have to be epoxied to the rear axles.

I have also described how to add two different rear ends, either the pickup or the turtledeck that comes with Monogram's Little "T." Use which ever one you like best. However, for the pickup box, you will have to shorten the frame slightly more than indicated, the interior may also need more modification.

A radiator is not needed with a VW engine. If you really want to go custom, you could style a front with no radiator at all. It is much easier, though to just leave it, and install a simulated radiator. All you have to do is to cut down the stock "T" radiator and file off the inner core. You could also add a piece of clear plastic, and a decorative decal on it, instead of the radiator core. Go as mild or as wild as you want.

A VolksRod is not at all hard to build; and that is the only way you will get one at the present time. And by using any spare parts you might have in your parts bins, you can make your VR completely original. VolksRods are what's happening, so get busy and build one.



1
Start by cutting a wedge, $7/32"$ wide at the cowl line, from Monogram's '30 Ford Phaeton hood



2
File louvers off the sides of the hood. Measure up from the bottom of the hood approximately $1/2"$ in back and $7/16"$ in front. Draw a line, and cut the hood down.



3
Tape the hood in position and heat sink short strips of wire across the seam.



4
Now mold plastic over the wire to reinforce the seam. Refer to the text.



5
File the chrome off the Monogram Little "T" fire wall. Fill the hole for the engine with sheet plastic. Make sure both frame rails are equal, then glue the spring housing to the frame. The engine helps line the pieces up.



6
Shorten the "T" frame to $3-3/16"$ and notch the end for the spring housing from Monogram's Futurista.

7
Cut the trans-axle mount from the lower body piece of the Futurista kit.



9

Cut down the trans-axle mount and glue it to the spring housing. Line pieces up with the engine.



Notch the body as shown to fit better over the radius arms.



13

If you use the pick-up bed, from Monogram's Little "T" kit, cut the bottom from it as shown and glue the tailgate in position.

Make a floorboard out of sheet plastic and glue it in place as shown.

15



10

Notch the interior as shown to fit over the shock mounts and radius arms.

1. REMOVE CARBURETOR REMOVED IDEAL AND MOUNTED ON PLASTIC DISPLAY STAND.



12

Cut two bubbles from the Futurista's body piece to cover the notches cut in the body to fit over the radius arms.

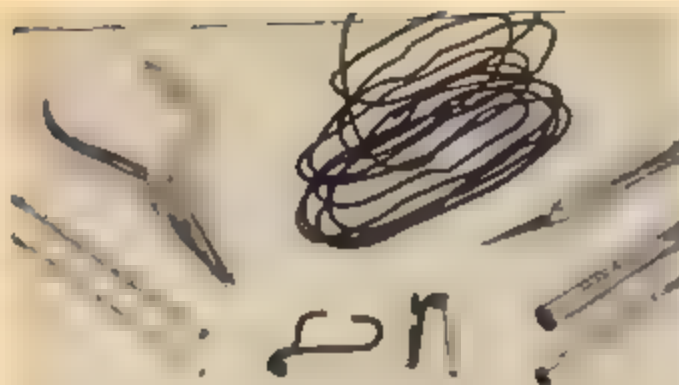
14

The body and turtledeck must be cut out to fit over the shocks and mounts.

Putty the hood to achieve the desired contours. Use several thin layers.

16





17

Bend up a set of headers from bell wire. Use $1/8"$ and $3/32"$ tubing for mufflers and tail pipes.



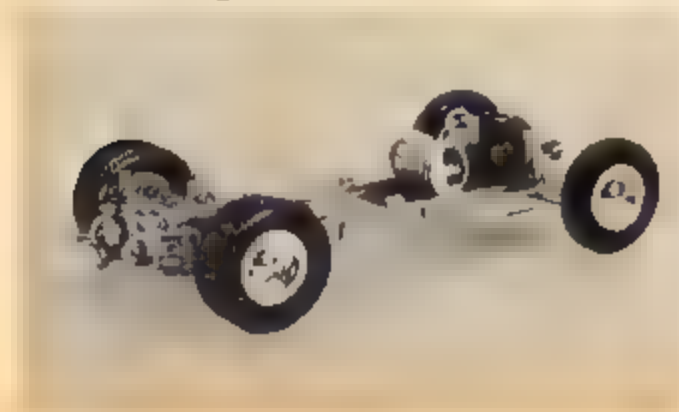
19

Narrow the stock gas tank $3/32"$ on each end, and end pieces $1/16"$



Detailing of the instruments must be done with a fine brush. Take your time

This is how the finished chassis should look wth everything in place. Now you can paint the car and finish assembling it



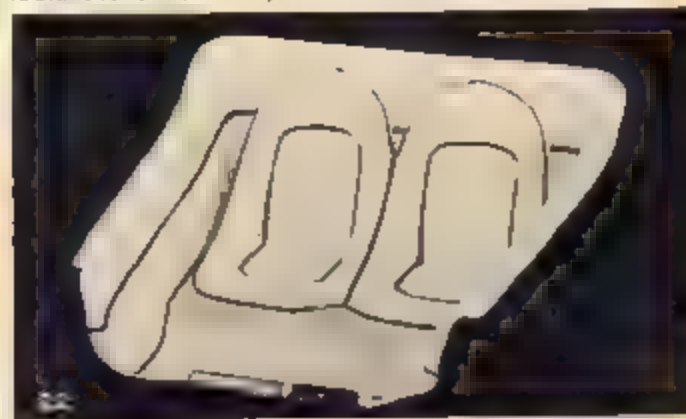
18

To get the wheels and backing plates to fit over the $1/8"$ tubing described in the text, drill the holes out to $1/8"$

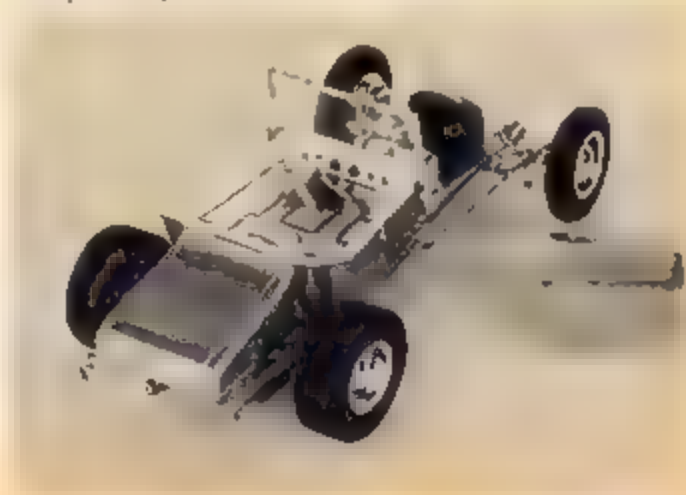


20

Here is how the completed, wired engine should look. Headers were painted silver



The interior design is up to you. I kept it simple, and just striped it





MOONCRAWLER

And some of the entries would put many NASA engineers to shame!

The response to our November, 1967 Mooncrawler contest was gratifying, ~~to~~ say the least! With a January 1, 1968 deadline, the people who entered really had to hustle in order to build an original mooncrawler, photograph it, and get it to us in time to make the deadline.

The winner, Rex Barrick, of 1311 Hillcrest Drive, Arlington, Texas 76010, receives our \$25.00 Savings Bond and a one year subscription to **MODEL CAR & SCIENCE**. His mooncrawler borders on the unbelievable. Our panel of judges included several top NASA (National Aeronautics and Space Administration) officials, and they were as impressed as we were with

Rex's ingenuity and workmanship.

Other entrants displayed remarkable originality too. Unfortunately, as in many contests, the photographs sent in by many people were too poor for good reproduction. Although the moon crawlers were good, the photos eliminated them from the competition. In the October, 1967 issue of **MC&S**, we ran a comprehensive article on how to photograph your model. Back issues are available for 50¢. Send to: Back Order Dept. **MODEL CAR & SCIENCE**, 131 Barrington Place, West Los Angeles, Calif. 90049

We'll be running more contests in future issues of **MC&S**, so

watch for them. Incidentally, we were pleased to note many letters from *model car builders* who remarked how refreshing it was to build a model in another field. We believe if more of you would take the time to experiment, and build a model in the airplane, boat, or similar fields, you would have just as good a time as you do when you build your favorite model car.

Congratulations to the winners, and thanks to all of you who took the time and energy to build a model mooncrawler for this contest. It only proves again, that the average **MC&S** reader is a rather ingenious fellow!



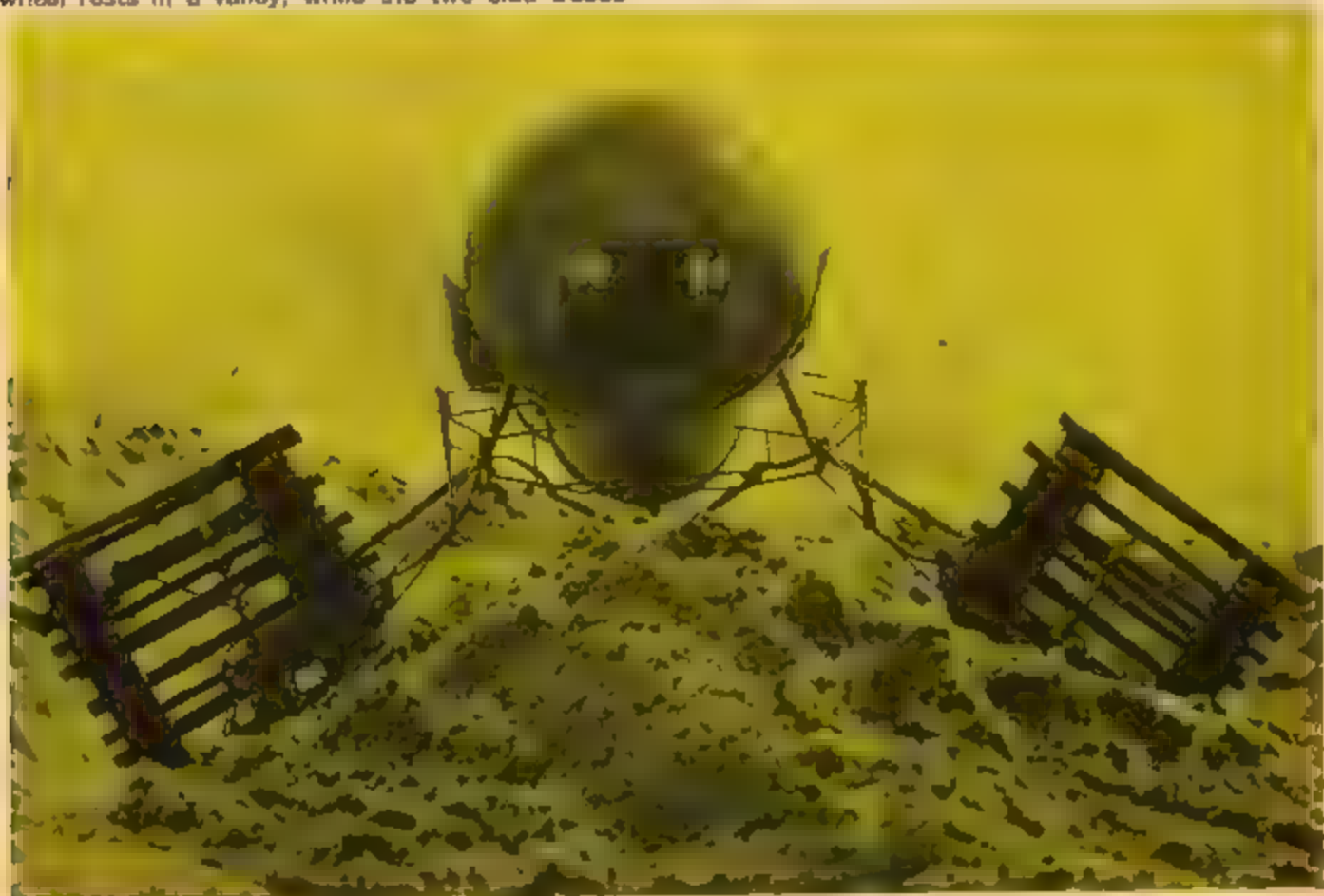
Rex Barrick's mooncrawler gets the nod for the top award, a \$25.00 Savings Bond, and a one year subscription to MC&S. This fantastic piece of engineering and imagination is made from the following items: Dome — top halves of baby toys; Cabin — a one pound coffee can; Power units — 25 feet of model airplane tubing, 50 Q-Tips, and 2 toy bulldog tank power units and rollers; Rear wheels — brass tubing, rubber ball, 2 pickle jar lids; Suspension — brass tubing and piano wire; Oxygen tanks — butane fuel tanks. How's that for a parts list!

The mooncrawler is actually suspended. The design of the suspension allowed the treads to contour to the surface of small hills and valleys, where two or more planes were off level. All tests proved successful. The suspension also relieves sideward pressure on the power units. Note how the rear wheel rests in a valley, while the two side treads

rest on two different planes. The body of the mooncrawler? Look for yourself — it's dead level!

The rear wheel pivots, allowing the mooncrawler to be steered, by pivoting around the stopped tread. Radius could be reduced with the addition of an individual tread reverse. A close up of the rear wheel discloses a skid bar, designed for meeting abrupt objects, and a split spherical wheel to eliminate side brackets.

The power unit was designed for maximum traction and power (it's geared 500 to 1!). In tests, it worked well on flat ground, but it tended to throw treads and bog down in loose sand. The mount from the power unit to the suspension proved inefficient, caused trouble in coming out of a small valley onto a flat surface. Don't feel bad Rex, the 1:1 scale mooncrawlers are having problems too!



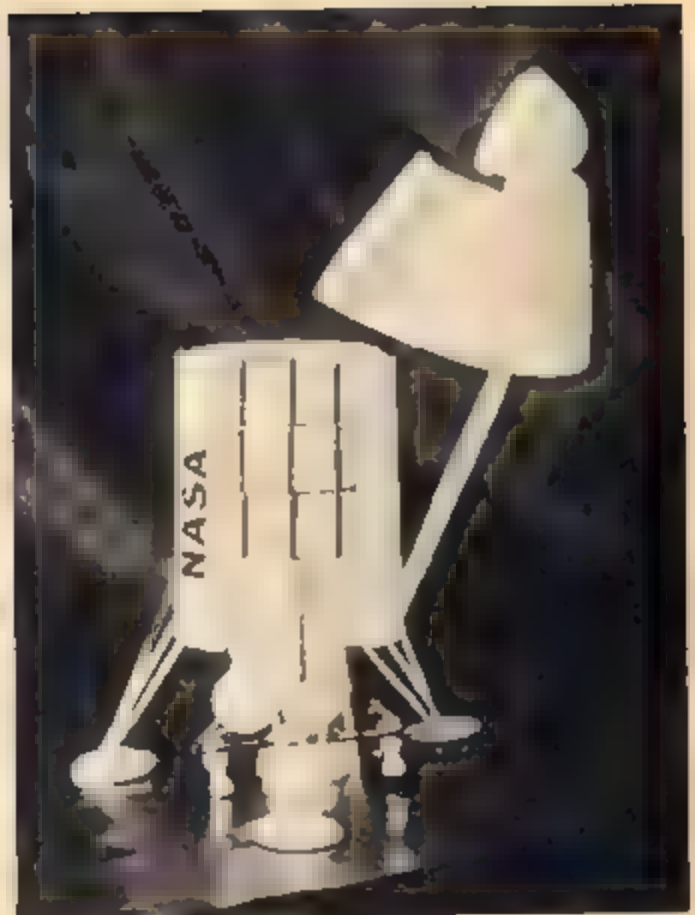


Glenn Illas, of 877 Queen Anne Rd., Teaneck, N.J. 07666, entered this impressive mooncrawler. Four pneumatic spheres are used rather than wheels, to propel the craft, because more surface area is presented to the surface of the moon. No axles are used; instead, the spheres work in a fashion similar to ball bearings. A series of vertical and horizontal rollers and ball bearings in the bands around the spheres accomplish the power transfer. The three nose tubes are shielded tv cameras. Two movable claws for handling large, or heavy objects, are also up front. A radar net under the front of the crawler warns against soft or weak spots in the lunar surface. The tall mast contains the communications antenna, and a red warning light, so spacemen outside the craft can find their way back. The color scheme of the crawler was carefully planned. The nose and tail are orange, because it is the easiest color to spot in space. The rest of the body is white, to reflect heat. Running gear is flat silver-gray, so it will not reflect light into the spacemen's eyes. The model is made of file card stock, scrap plastic and vac-U-Form (Mattel) plastic sheets, window screening, pin striping tape, marbles, wire, aluminum tubing, and golf balls. The rear hatch handle is a button snap! Beautifully executed, Glenn!





14 year old Craig Heffern, of 3310 Patrick Henry Drive, Falls Church, Va. 22044, used a cool head in constructing his crawler. The nose cone opens to expose lights, camera, television, etc. The cone is supported by a pivoting arm which is attached to the main body of the crawler. The cylindrical body of the craft forms two sections. One section bears three wheels, could contain some instruments for making soil tests. The wheels are connected to the main body by arms that rotate the wheels to the ground, then extend. The other section of the craft contains the braking rocket, fuel tanks, and three vernier rockets. This section, after releasing the rockets and other equipment, forms the main body of the mooncrawler. It contains all the equipment needed for exploration. The model is constructed out of a large mailing tube, balsa wood, wire, and plastic parts. Out of sight, Craig!



It took Mike Neathery a month to build his moon-crawler, working about an hour each night. "Mike's Mooncrawler Factory" operates out of P.O. Box 556, in Burkesville, Ky. 42717. The crawler is made of balsa, cardboard tubes, and ping pong balls. Each hand-carved balsa body section was sanded ten times, after being sealed to remove the grain. The last car in the "train" is a lunar dozer. That dozer blade is made of a sheet of thin balsa. All wheels are cardboard tubes, except the back wheel of the dozer, which is foam plastic. Sharp indeed, Mike





MODEL OF THE MONTH



AMT's '67 'Cuda funny car was the basis for this sensational first place winner. It belongs to John Brandimarte, of 374 Hilltop Rd., Paoli, Pa. 19301. John made the frame from K&S 1/16" tubing, painted flat black. The suspension was also scratch built, using K&S brass strips and 1/4" brass channels. The roll bar was made from 1/8" chrome plated tubing. Engine is an Aurora "427" with dual four barrels, from AMT's Mustang. Front radius rods were lifted from Reveal's custom roadster parts. The front axle is a 1/2" chrome plated brass tube. Tie rods and steering linkage are piano wire. Rear axles are made from two AMT axles, glued together and wrapped with plastic electrical tape, mounted on Reveal Hi-brand mags. The

front tires and wheels are AMT's '67 Corvair units. The body features a special "high rise" hood from an AMT '67 Mustang. The stock grille and headlights were removed and replaced with flat black screen. The body is hinged in the front and rear so it can be tilted up from the front or the back, or completely removed. The body is finished in AMT solid blue, with a competition yellow overlay. This resulted in a chartreuse color that was more yellow in some places and darker green in others, and emphasized the name "Kingfish" dramatically. The car is lettered with precision letters and decals. A smashing success, John. Your \$25 Savings Bond is on the way!





Robert Thome, Lowry AFB, California, used AMT's Deora kits to come up with this "Wild Thing" which we dig! Bob took the engines from both kits and mounted them in the rear of one of the Deoras, after removing the engine cover. The

engine is fully wired. The paint is a gleaming candy apple red, with pin striping. The interior is highly detailed. The bubble top comes off for dragging. And while he was at it, he detailed the drag chute too! Smooth, Bob, smooth.



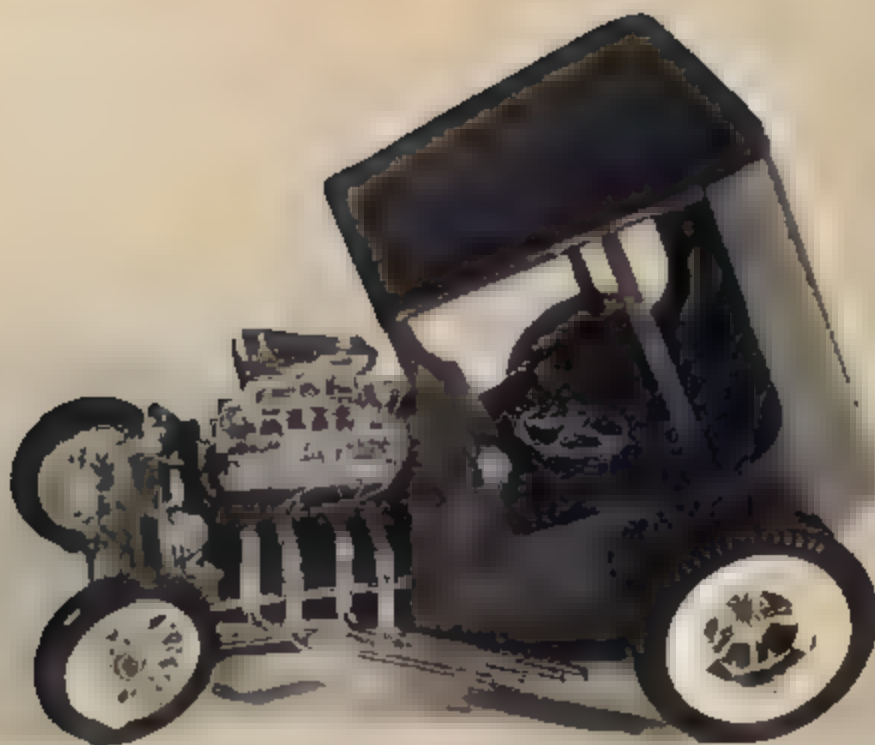


Chris Geiger has from North Merrick, N.Y., and judging from his '29 Ford pickup, they build good models in his part of the woods! The body has been left basically stock, except for repositioning the gas filler in the pickup bed, and removing the hood sides. The body is painted red with white pin striping. The bed is done in varnished cigar wood, with a full set of tools and the tailgate, doors, and hood open. The interior is done in red and gold corduroy. The dash is detailed and the floor is done in Naugahyde. The T-Bird mill is outfitted with sparkplugs, ignition wires, fuel lines, battery cables, and radiator hoses. A white chassis looks cool too, with brake lines and dual exhausts.

HOW TO ENTER OUR CONTEST

You can enter any kind of a model you like (train, plane, boat, car, etc.) so let your imagination run wild! Just send one or two sharp black and white (no color please, we can't use it) photographs of the model, and a brief description of what you have done to it. Remember, other readers are interested in what you have done to your model, so be specific when mentioning the parts that you used. Send to: Editor, MCS, 171 Barrington Place, West Los Angeles, California 90049. Sorry, we can't return photos.





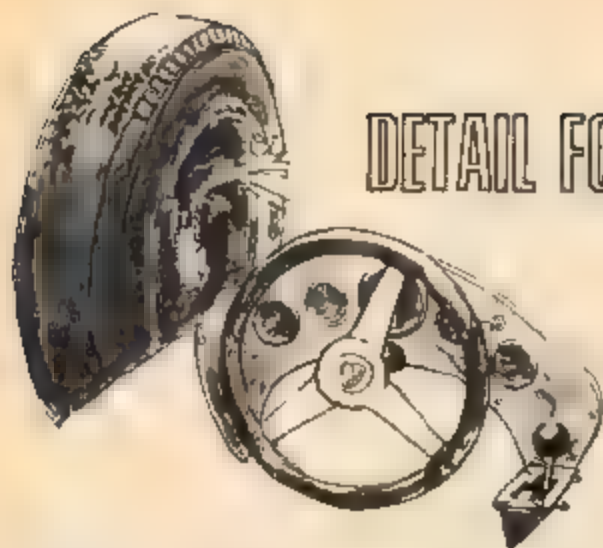
George Miller, Jr., of New Market, Va., modified Monogram's Uncertain T, with interesting results. The gauges are all detailed, and a floor shifter added, made from a hat pin, cut off and bent to shape. The interior is also painted with two coats of flat black Testor Fla paint. The exterior was

Kenneth Shafer, Louisville, Ky., conjured up his wild "Sandblaster" machine from a '32 Ford roadster body, a cycle windshield, and a way-out '390" Tri-Power Merc mill, topped off with

kissed with two coats of orange metal flake paint. The '57 Buick powerplant is equipped with a blower. Header pipes were cut apart and fitted and glued in separately. The engine is wired with thread, the color of the car. Truly a "T" with a "Degree" George!

stacks and exhausts that were lifted from the scrap box. The mill rests on a balsa and file card frame. The driver sits back in the rumble seat, as far away from that hairy engine as possible!

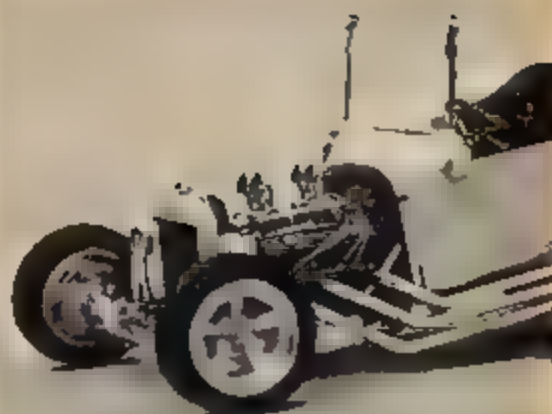




DETAIL FOR REAL

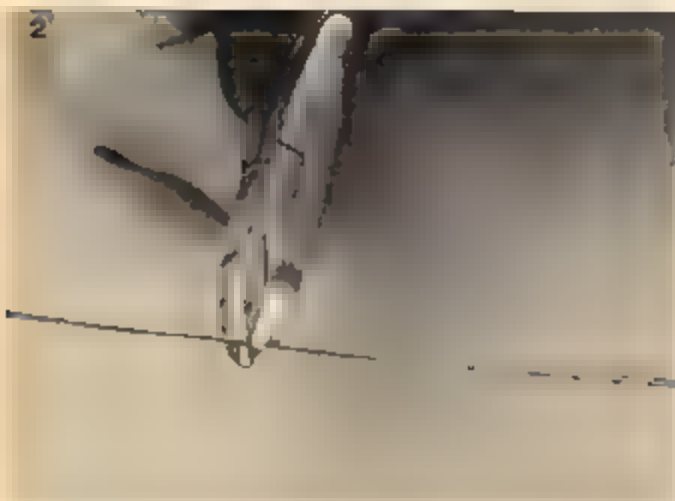
By Don Emmons

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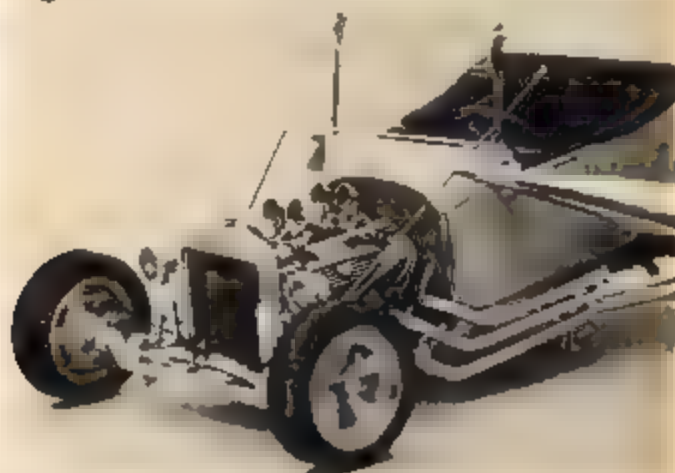


WIRE FOR BRACE RODS

Make two rods from fine gauge wire. A good source of this wire is that used for control planes.



3



This rod, if it were real should have a set of brace rods to help support the windshield

This one modification adds an amazing amount of realism to this little rod. But most amazing of all is how little time and effort it takes to make the brace rods.

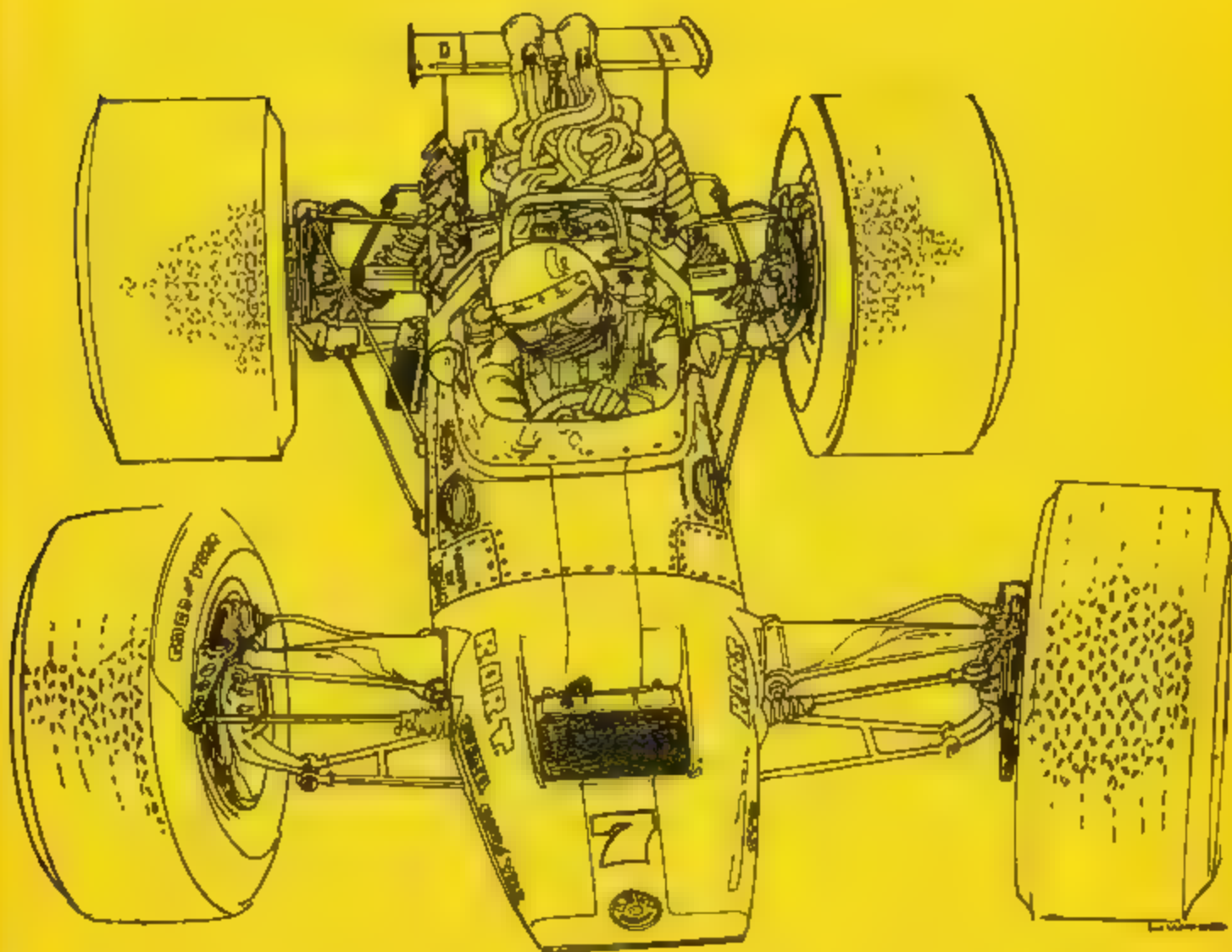
Use a very small amount of glue on both ends of the rod and carefully set into place

4



MODEL CAR & TRACK

April, 1968



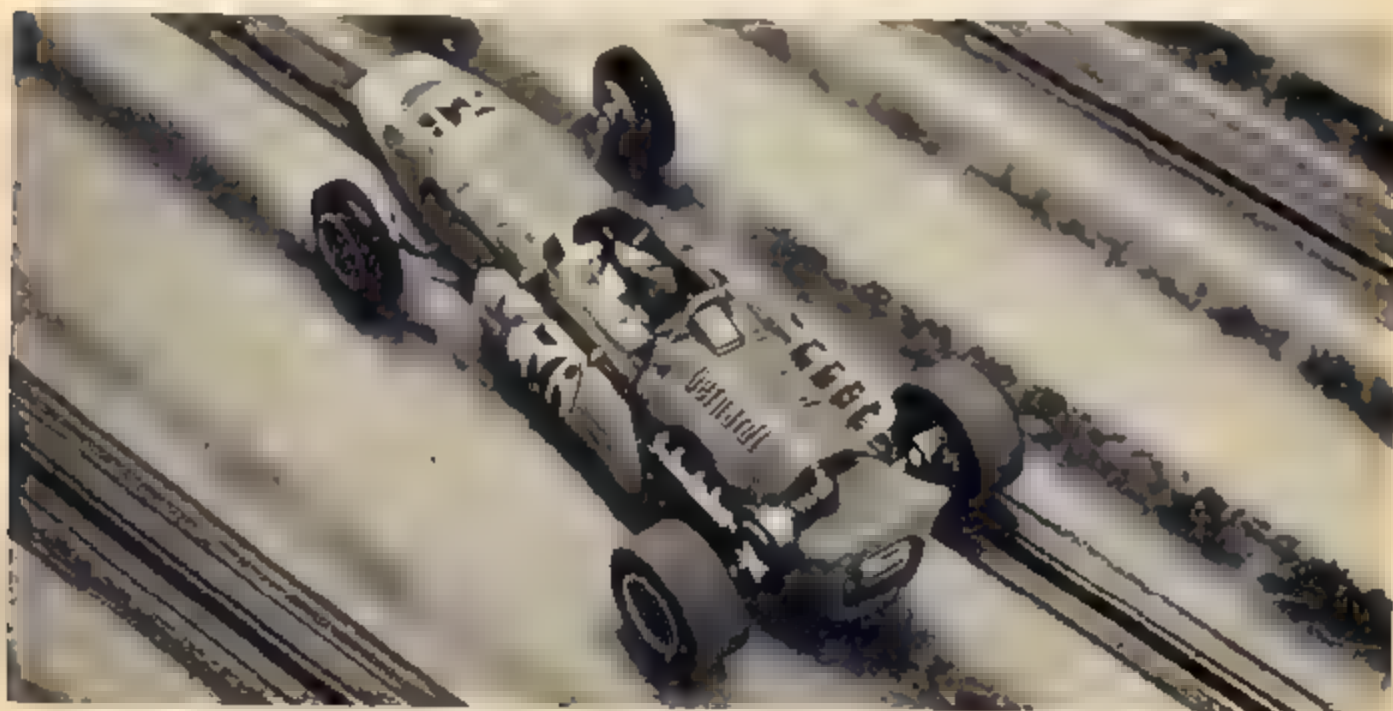
CHAMPIONSHIP RACING



NAMRA

STYLE

Here's slot racing at its best, as handled by the top racing organization in the country.



This is Frank O'Conner's Concourse winning Gerhardt. It also qualified for, and ran second in the semi-

Just what is a NAMRA race like? Many people who have never seen one often ask this. We could say it's miniature car racing at its best, but better yet, here's what happened at the 1966-1967 Championship Race.

A third place in the main event at NAMRA's final championship race gave Tom Palisi, Jr the National Championship. Going into the last of nine races, Palisi held a slim nine point edge over Charlie Cressi and 10 or 11 points over Howie Ursaner, last season's champion, and Sandy Gross.

The expected four way donnybrook failed to come off when Ur-

saner and Gross traveled to Tennessee to run in an enduro. This left only Charlie Cressi to challenge Palisi's point lead.

The scene for this race was the giant Eastmeadow Miniature Raceway on Long Island. No better or more challenging track could have been chosen for this 1/24 Gran Prix. With over 500 feet of mirror smooth surface and 22 of the trickiest turns imaginable, this is truly a championship driver's course. Owner Al Pappas must be congratulated for putting together all the right ingredients for the ultimate track

Tech inspection and practice

got under way at nine AM. Many of the drivers who had never been on the track before found the going rough. To really learn 22 turns takes hours of practice. When practice finally closed at 12 noon, all but the home drivers were still running rough in spots.

Eliminations started at one o'clock and local drivers Don Friedmann and Vinnie Evangelista really showed the rest of the field the way around. They qualified 1-2 with Palisi and Cressi 3 and 4 to make up the field for the main event

The qualifiers for the semi-final were Brian Wolfsohn, John Mar-

un, Fred Correnti and concours winner Frank O'Conner. Frank's beautiful Gerhardt-Offy proved that concours cars can run fast too.

Since this was to be the last year in which Indy type cars could be run with GP cars, a lot of mid-night oil had been burned in preparing some beautiful roadsters.

The consy was qualified for by Tom Baskette, Frank Bianchi, Steve Nielsen and Roy Wong. This foursome started things off for the first race of the day. Bianchi got out to a quick lead and held it throughout the race despite some very early gear noise that developed at the halfway point. Nielsen was second and Wong third with Baskette a DNF.

The semi-final turned out to be a real heart stopper as all four cars threatened not to finish. O'Conner started it all by going into the wall while in second and spent seven laps getting his car's rear end sorted out. Martin went onto the floor at the big sweep and bent things up a bit. Wolfsohn's car went dead for a few seconds with three laps to go and finally lumped across the line in first place. O'Conner, back on the track and going like stink, passed Martin to take second place. Martin went dead on his last lap and finally took third place. All of which goes to prove how highly stressed today's cars are, to be as fast as they are. Forty or fifty laps pushing hard around a five hundred foot track takes a toll on machinery.

The "book" for the main event had the two local jets, Friedmann and Evangelista, as co-favorites, with little trouble expected from Cressi and Palisi. When the go sounded, it looked like the forecasters were right. Friedmann took the lead out of the first turn with Evangelista right on his tail up the first 65 foot straight and they then began to move out on Palisi and Cressi. That was the order when the first section ended. Friedmann had even lapped Cressi.

The cars were moved for the second section and the "Old Fox" Cressi, finally got his thumb unstuck and began to pour it on.

He passed Palisi in five laps, and passed Evangelista in ten and almost got his lap back from Friedmann as the section ended. The third section still had Friedmann an easy first, but the other cars were all within ten seconds of each other fighting for second place. Cressi dropped to fourth when he pitted to straighten his braid and that gave Palisi second with Evangelista third. Cressi, back on now, chased the pack, while Evangelista bent things up a bit against the wall. The pressure was on, and he now dropped back into fourth place.

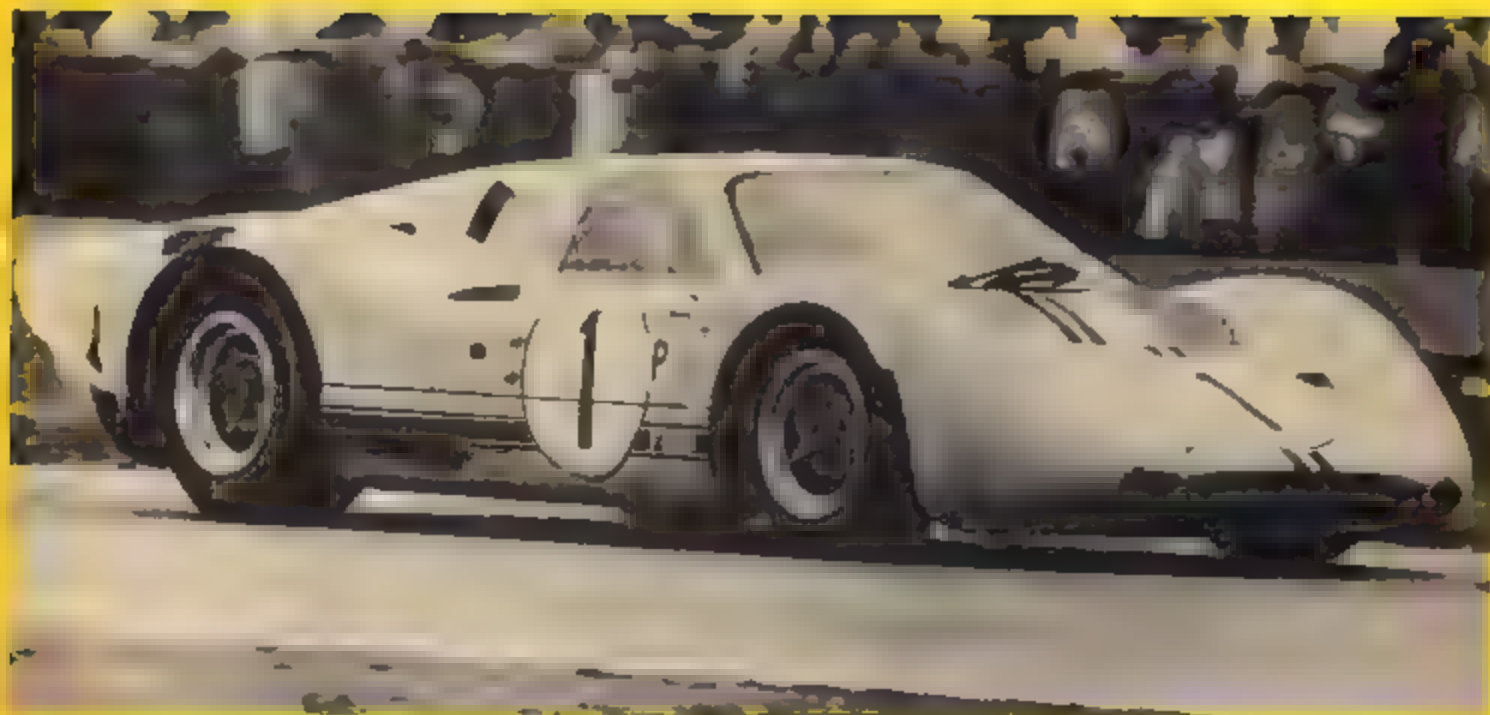
The fourth and final section opened with Palisi making a quick pit stop for new braid. And this was all the advantage Cressi needed. He took second all the way home. Don Friedmann drove a fast smooth race for an easy win that was well deserved. Palisi took third to insure his overall championship, and hardluck Vinnie Evangelista was fourth.

The close of this, NAMRA's last racing season, proved to be a much bigger season than the previous one. More races are scheduled. Here are the final standings for the '66-'67 season.

- 1 Tom Palisi, Jr.
- 2 Charles Cressi
3. Brian Wolfsohn
- 4 Howard Ursaner
- 5 Sandy Gross
6. Robin Snyder
- 7 John Martin
8. Larry Watson
9. Fred Harsh-Peter McCarthy
- 10 Vince Fairbrother
- 11 Tom Palisi, Sr.
12. Frank O'Conner
- 13 Dennis Greenup
14. Jim McCormick
15. Bob Strauber
16. Jim Palisi
17. Jose Rodriguez, Jr.
18. Kurt Cressi
19. Steve Nielsen

NAMRA's current National Champion, Tom Palisi, Jr. with his smiling father, Tom Sr. in the background.





Club racing demands ultra-quick cars with impeccable handling. Here's how to build one.

By Robert Schleicher

This month, we begin a new series of car building and modifying ideas especially for those of you who race with the private clubs. We intend to give you some basic and simple ideas for either assembling your own chassis from bits of brass, or, in the case of this car, adapting the better 1/32 scale "kit" chassis to fit lighter-weight bodies.

This particular car is one of

the best "stepping off points" for a newcomer who wants to try his hand at club racing but hesitates, from lack of experience, to build his own chassis. The Strombecker "Hemi" chassis has enough strength, and the motor enough speed to be very competitive. A bit of extra weight below the motor, a Cox "snap-in" pickup, and either German's, closed cell, or Veco foam rubber tires to suit

the track conditions of your area are the only extra parts you'll need.

The type of body mounting shown in the photos can be readily adapted to any of the Lancer 1/32 scale coupes as well as to most other brands of 1/32 scale kit chassis, so you can build a number of different types of cars following these general instructions.

"CLUBMAN" SPECIAL

THE 1/32 SCALE FORD MK IV



The Lancer series of 1/32 scale clear plastic sports car coupe bodies will adapt easily to the super-quick Strombecker "Heml" series kits.



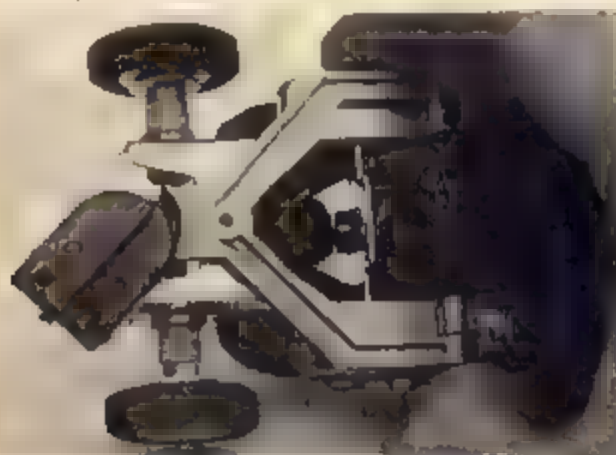
Rubber plugs hold the body to the chassis on the latest Strombecker cars.



Cast metal drop arm is standard feature of "Heml" cars. Helps on many tracks.



Rear loop on Cox "snap-in" pickup is trimmed off to clear drop arm



Corners of front chassis notch and the notch in the drop arm are filed out at a 45° angle to allow Cox pickup to swing.

An X-Acto saw blade makes removal of the stock body posts easy. Cut close here.



A .030" or 1/16" brass plate (called a pan) is drilled to allow motor oil and body mounting. Cut side notches to give 1/16" ground clearance under drop arm pivots.

Lancer interior is carefully trimmed along molded-in





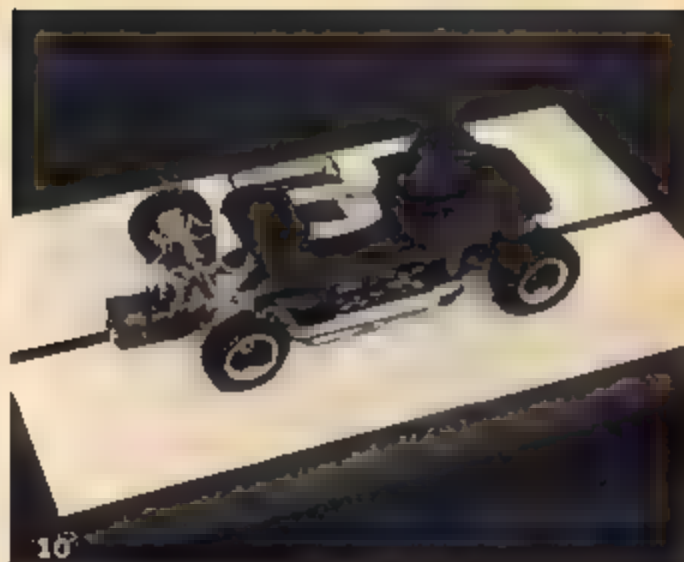
9

Assemble cut-off mounting posts to chassis using rubber plugs. Fit interior temporarily into body to check mounting height.



Champion "Wire Spoke Type" wheel inserts can be used, but these from the Aurora Fiat are more like Ford's. Trim and paint.

Paint headlight cover tapes on the inside of body and final body color last. Allow body to dry overnight, then epoxy interior to the inside to complete body mount.



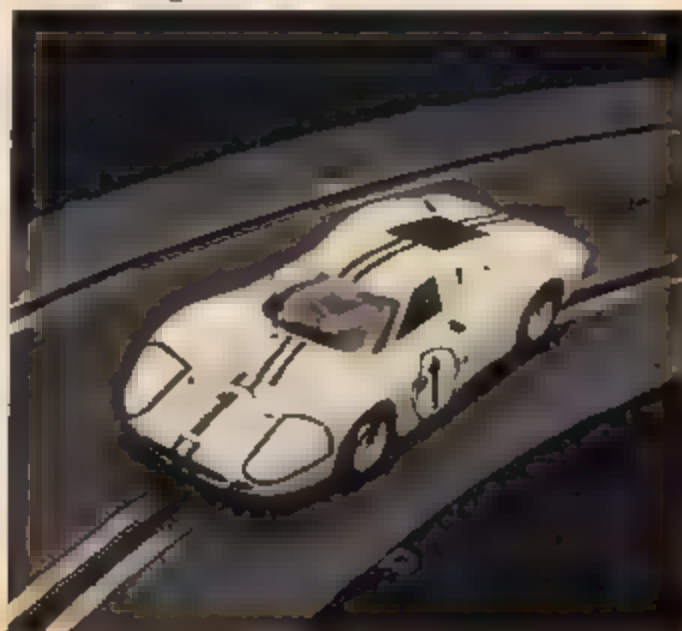
10

Trim tops of mounting posts to give correct body level and then glue posts to interior.



Apply decal markings from Cox's #139 assortment, to inside of body. Cover with clear Ulrich paint for clear plastic.

This 1/32 scale Mark IV Ford is yellow with correct numbers and markings of the car that won the 1967 Sebring 12 hours.



THE U.S.R.A. RULES

The slot racing picture is looking brighter!



UNITED SLOT RACERS ASSOCIATION

It's hard to believe that an industry as volatile as the slot racing industry could have gone for so many years without having a governing body, or central organization. Hard to believe—yes, but it's true, sad as that seems.

The slot racing industry nearly went down the tubes, because of this lack of organization. Nearly, but not quite! Now that the crisis is over, and the slot racing industry is once again standing on firm legs, the future is looking brighter. Frankly, the scare that this last "shakedown" year threw into every manufacturer, has done some good. The multi-million dollar slot racing industry has finally realized that a common set of rules is necessary if the sport is to survive.

Well, now the sport has a common set of rules, and it appears that most of the manufacturers are going to recognize them. And where did this set of rules come from? From H.I.A.A. (Hobby Industry Association of America)? No indeed! The rules originated in the minds of a few professional slot racers, right here in Los Angeles. These drivers, realizing that the sport needed a firm, guiding hand, and *right now*, formed a drivers association called "The United Slot Racers Association" which has nearly every top driver in Southern California as members.

The association approached *Model Car & Science* recently, and asked if we would co-sponsor the L.A. Championship Series, run last year by *Car Model* magazine. We agreed, and this new alliance promises to be one of the strongest that has ever appeared on the national slot racing scene.

The U.S.R.A. deals only with 1/24 scale commercial track racing. The rules are fairly liberal, yet tight enough so true "things" will never be seen. The cars must have a scale "appearance" which can result in a very attractive car, yet one with still enough "thingie-type" performance to satisfy the most avid high-performance buff.

The officers of the U.S.R.A. are as follows: President — Lynn Fletcher; Vice President & Treasurer — Jeff Martelli; Secretary — Keith Tanaka; Sgt. At Arms — Tom Taber; and Race Steward — Gene Hustung.

The first *Model Car & Science* — U.S.R.A. race will be covered thoroughly in the next issue of MC&S. Gene Hustung will run the races, and Al Hall will be the official MC&S photographer.

Although this rumor is unconfirmed, as we go to press, it appears as though the *Car Model* and *ARCO* race series will adopt the U.S.R.A. rules too. If they do, it will mean that the country will be running under one common set of racing regulations, for the first

time.

Is it any wonder that we're excited? Watch for the most factual, thrilling race reports you've ever seen, coming up in MC&S.

UNITED SLOT RACERS ASSOCIATION 1968 RULES FOR 1/24 SCALE SLOT CAR RACING

I. GENERAL RULES

- (A) All cars will be approximately 1/24 scale & represent an actual race car with at least one race run in big car competition.
- (B) All cars will represent the following class types:
 - 1. GP (Grand Prix Formula 1) class which may 1961 models to present models. Indianapolis types not
 - 2. Sports racing class.
 - 3. Grand Touring class.
- (C) Any body may be used, provided it meets requirements of sections I A & B. In addition, the body must:
 - 1. Be realistically proportioned so as to be recognized as a certain type car.
 - 2. Be fully and realistically painted (colors optional) with at least 3 sets of the same number, including both sides, and front or rear. All numbers shall be right side up.
 - 3. Contain a suitably painted driver in cockpit, with helmet, shoulders, arms and steering wheel and detailed instrument panel. It is recommended that the body be detailed to resemble the actual race cars they represent as closely as possible, with decals, hardware, striping, exhausts, intakes, mirrors, etc. where applicable.
- (D) The cockpit area must be covered with suitable material such as plastic, card board, commercially available interior etc., in all classes, so that chassis and motor are not visible through the cockpit area. However, an opening as large

than the armature stack will be allowed in the cockpit area or body for motor cooling.

- (E) Open cars must have a head high roll-bar.
- (F) The body must conceal the motor, chassis and gears when viewed from directly above, except for motor cooling opening and where the full scale car is vented, lowered or screened.
- (G) Bodies may not be bubbled to clear pickup or gear(s), and shabby looking cars will not be allowed to run.
- (H) No bodies wider than $3\frac{1}{4}$ " will be allowed.
- (I) Sports racing class and grand touring class bodies may have wheelwells flared to fender tops, providing the body width limit is not exceeded. Tires may not extend outside of wheelwells in any case (this rule applies at top of wheelwell).
- (K) The wheels must be centered in the wheelwells of the body.
- (L) Wheel and tire requirements:
 - 1. Front Tires: $\frac{3}{4}$ " dia. min. and $3/16$ " min. width. Track contact width is not stipulated, except that o-rings may not be used as tires. Tires must be black.
 - 2. Rear Tires: $\frac{5}{8}$ " dia. min. and $\frac{3}{4}$ " max. width. Sidewalls must be black.
 - 3. All wheels must be realistic looking or have inserts.
- (M) The max. "track" shall be 3" no matter what scale size is. This is measured from outside to outside, over tire and wheel. Front axle may have $\frac{1}{8}$ " total side movement. ($\frac{1}{16}$ " each side.)
- (N) Any normal type of traction fluid will be allowed unless track rules dictate otherwise. Traction fluid may not be sprayed on track nor will carbon feel be allowed.
- (P) Axles cannot extend outside of the wheel, knockoffs, jam nuts or other wheel retainers may extend $1/32$ " max. outside of wheels.
- (Q) All four tires must roll, must touch the track and must support the weight of the car.
- (R) Track clearance: entire chassis must clear $1/16$ " (excluding gear).
- (S) The pickup (or guide shoe) may not be visible when viewed from directly above (exception: GP class cars may have pickup visible when turned, as in a corner, but body must cover pickup when it is straight). Only one pickup is allowed.
- (T) Mechanical or "Dynamic" brakes are allowed. No power brakes in controllers, or auxiliary power systems are allowed.
- (U) Automotive 12 volt batteries are recommended for track power. Power packs which provide 14 VDC with a full track, and having a minimum of surge are also acceptable, providing the AC leakage is held to 5 volts maximum, and that the available amperage for each lane is no less than 6 amps with full track. So an 8 lane track must have a total of 48 amps min. at the track.
- (V) Track shall have 8 lanes minimum.
- (W) It is recommended that tracks have positive pickup tape on right side of car. Polarity switches shall be secured so that all cars run with the same polarity.

(X) Track cleaning shall be completed no less than 6 hours prior to scheduled qualifying time, so that the lanes may be broken in again. Special braid cleaning shall not be done prior to qualifying unless absolutely necessary.

(Y) No motor restrictions.

(Z) In case of any discrepancy, the decision of the Race Steward shall be final.

II. SPECIFIC RULES FOR RACING CLASSES:

(A) CLASS 1: GP (Grand Prix Formula 1) race cars as described in section 1B.

- 1. Bodies may only be cut away in the area of the rear axle if the original car has no covering in that area.
- 2. Gear must be covered by body, or motor or exhaust system when viewed from directly above.
- 3. No attachments such as spoilers, diplanes or wings are allowed unless documented with photos showing that the original car used them.
- 4. All cars in this class must have exhaust pipes.

(B) CLASS 2: Sports Racing Cars.

- 1. Spoilers and diplanes are allowed on all cars.
- 2. Spoilers cannot be wider than the body or be longer than $\frac{1}{2}$ " from front.
- 3. Diplanes may be used for front stabilizing purposes, but must originate under the top of the body. Diplanes cannot be wider than the body or be longer than $\frac{1}{2}$ " in front of the body. Diplane may be used to cover the pickup, but it must be colored, not clear.

(C) CLASS 3: GT (Grand Touring) cars. Same as Class 2.

III. GENERAL RACE RULES

- (A) For qualifying contestant may have 5 practice laps and then be timed every other lap for 4 timed laps. One pass will be allowed, but once the contestant completes his first practice lap he cannot postpone his qualifying attempt. If mech failure occurs, the problem shall be rectified as soon as possible. The contestant shall finish his qualifying run as the Race Steward directs. The lowest time of the 4 timed laps will be posted as his official qualifying time. Cars will be inspected just prior to qualifying run.
- (B) All contestants will qualify on the same lane which shall be chosen by the Race Steward.

(C) Any contestant not completing his qualification due to mechanical failure or by going off course cannot attempt to qualify again, or re-enter the race, even by paying another entry fee.

(D) In the event two contestants post identical qualifying times, the contestant with the best backup time(s) will be considered the fastest of the two. If backup times are identical the contestant that entered earliest will be the deciding factor.

(E) The fastest 24 qualifiers will be eligible for the meets' races as follows:

- Main Event: The 4 fastest qualifiers
- Semi-Main: The next 6 qualifiers (5th thru 10th)
- 1st Consolation: The next 6 qualifiers

(11th thru 16th)

2nd Consolation: The last 8 qualifiers (17th thru 24th)

- (F) All races will consist of 4 heats of equal length run on alternating lanes.
- (G) Starting lanes will be determined by order of qualification, with fastest times having first choices, and so on.
- (H) No. of laps per race:
 - 1. Main Event — 200 laps
 - 2. Semi-Main — 120 laps
 - 3. 1st Consolation — 100 laps
 - 4. 2nd Consolation — 80 laps
- (I) Before the 2 consolations, semi and main events, any car repairs or changes of hardware may be made, except that the chassis and body used in qualifying must be retained. All qualified cars will be reinspected before the start of each race.
- (K) During the 2 consolations, semi and main events, cars may be worked on at any time, including lane changes, which will be rigidly held to 2 minutes.
- (L) The Race Steward will not stop the race except for: (1) car being in the wrong slot; or (2) "Ground Rules" which particular track irregularities may deem necessary. It shall be the job of the Race Steward to determine which (if any) "Ground Rules" to allow.

(M) Any competitor may call "track" for any of the above reasons. A penalty of 5 laps will result for every false "track" call. The Race Steward shall be the final judge.

(P) Drivers must conduct themselves in a sportsmanlike manner at all times. Particular notice is given not to harass or use abusive language toward Turn Marshals.

The Race Steward has the right to penalize any competitor at any time during a racing event for unsportsmanlike conduct.

(Q) Racing points will be awarded to the top eight drivers at each of 6 seasonal meets as follows:

- | | |
|-------------------|------------------|
| 1st place—10 pts. | 5th place—4 pts. |
| 2nd place—8 pts. | 6th place—3 pts. |
| 3rd place—6 pts. | 7th place—2 pts. |
| 4th place—5 pts. | 8th place—1 pt. |

(R) Names of all people desiring to enter a car shall be on entry list by 4:00 P.M. on race day, but entry fee need not be paid until car passes tech. inspection prior to qualifying.

Signups shall begin on race day. Qualifying will be in reverse order of signup. The first one signed up will qualify last.

(S) In the event an entrant does not answer the first time around during qualifying, he shall be given his "pass" and must run at next call or lose all chances. No money will be lost as entrant has paid no money to this time.

CONCOURS D'ELEGANCE EVENT

This event will be more combined with racing than in past championships as only the top 24 qualifiers will be eligible to earn points toward a yearly championship purse which will come out of the entry fees for the most part.

A point by point scoring system will be set up so that potential concours entrants will have a

chance to work on various areas of the car which will be most rewarded by points.

All race cars will be judged and points will be awarded as in the main event itself (i.e., 1st place concours gets 10 pts. and 8th place gets 1 pt.). This will be added up to determine the concours champion. Concours points and racing points will not be combined.

Photo by Tom Cardin



COLLECTOR'S DELIGHT

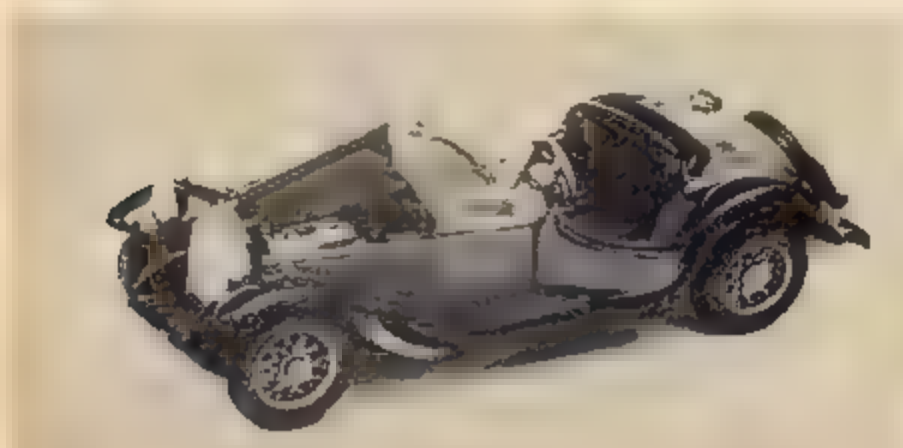
By Robert Schleicher

Politoys's 1/43 scale metal models of Italian and world wide auto-art



From the pages of the history of the Alfa Romeo comes the inspiration for the latest in 1/43 scale collectors cars by Politoys. This series of photos reveals the unique package and detail of the very best of the Politoys metal models. Operating hood, doors, steering, suspen-

sion, and windshield with removable top (with a tonneau to replace it) are not too unusual in some plastic kits, but these cars are painted and assembled so every one looks just as good as the car shown.



A complete set of the better looking automobiles from the land of Ferrari and Alfa Romeo would cost literally millions of dollars in full-size. It would be a good guess that even a plastic model collection large enough to include the models on these pages would take years to build, paint, and detail.

The models on these pages are intricately detailed cast metal automobiles. They are sold just as you see them, ready to display, with paint and details. Some feature working suspen-

sions, steering, detailed interiors and engine compartments, with opening doors, trunks, and hoods. They cost from \$2 to \$4.50 each, and they're worth every penny.

Those of you familiar with the miniature automobile world are aware that the 1/43 scale "collector's cars" are sweeping the world at a new high of enthusiasm among model and international auto fans. When one examines the amount of operating and non-operating detail incorporated into cars like these, it is no wonder!

All of the cars illustrated are brand new Italian imports made by the firm Politoys. Don't let the "toy" in that name fool you, these cars are far above the level of detail of even modern toys. They are true representatives of the adult hobby of collecting three-dimensional automotive art objects (hence, the term "collector's cars"), but their price is low enough that even the younger-than-adult auto fans can start a collection of their own. In fact, some of the most prized possessions of many of today's "adult" miniature car collectors are the cast metal cars of the 1930's and 1940's.

No, the hobby of collecting miniature metal automobiles is not new, but the standards of perfection have been upgraded considerably over the past few years. Few would argue that the Politoys Alfa Romeo GS Zagato "Quattroruote" (#532) or Giulietta 1600 Cangaro (#529) are examples of the absolute best available in detail, scale, and finish perfection.

You may be interested in knowing that the models here

are brand new items, never before available to collectors. Politoys have been sold in Europe for many years, but their early models were plastic and were not imported into the U.S. All of the current line of Politoys cars are metal models. Like 99% of all collectors cars, the interiors, windows, and a few detail parts are plastic. The bodies, wheels, and major components are, of course, beautifully die-cast metal. The unique feature of the Politoys cars is their assembly. Each car is assembled at the fac-

tory using screws instead of rivets like other brands. To the avid car collector, this means that the car can be easily disassembled for repainting in whatever color he chooses, or for touch-up detailing of instrument panels, engine compartments or the like.

When Western Model Distributors' world-wide-awake sales manager, Carleton Wiggins, heard of the new all-metal line of Politoys, he knew that American collectors would want them. Western Model Distributors, Los

Angeles or San Leandro, California, and Phoenix, Arizona sells Politoys to dealers in the 14 states west of the Rocky Mountains and 7 other distributors handle the line in the balance of the U.S. Your hobby dealer or department can obtain the address of their nearest distributor merely by writing to Western Model Dist. on their letterhead.

Look for these Politoys cars at your dealer; they are one of the very best ways to get a start on a life-long hobby of miniature automobile collecting.



One of the most beautiful GT car designs of all time is the Alfa Romeo Giulia 1600 Camparo by Bertone. Only one of the full size car was ever produced, but the Politoys model captures all of its flowing lines and detail in metal at 1/43 scale.



The current Alfa Romeo competitor in the under 2 liter sedan class racing is this Giulia GTA. Politoys' 1/43 scale model.

Ferrari Dino coupe is another car that is available only from Politoys. Note that each of the cars has correctly-styled wheels.



The "Tubolare," or Giulia Zagato as Politoys calls it is example of late-model Alfa Romeo racing machinery. Model is \$3.00.

Tiny "Penny" models are unique versions of current-style Grand Prix racers. BRM V8, BRM H-16, Lola, Lotus, Cooper, Eagle, Honda, Brabham, and two Ferraris are available at only 88 cents each.



Shelby's 1967 Can-Am machine provides an interesting challenge for the serious model builder. Here's what the real one looks like.

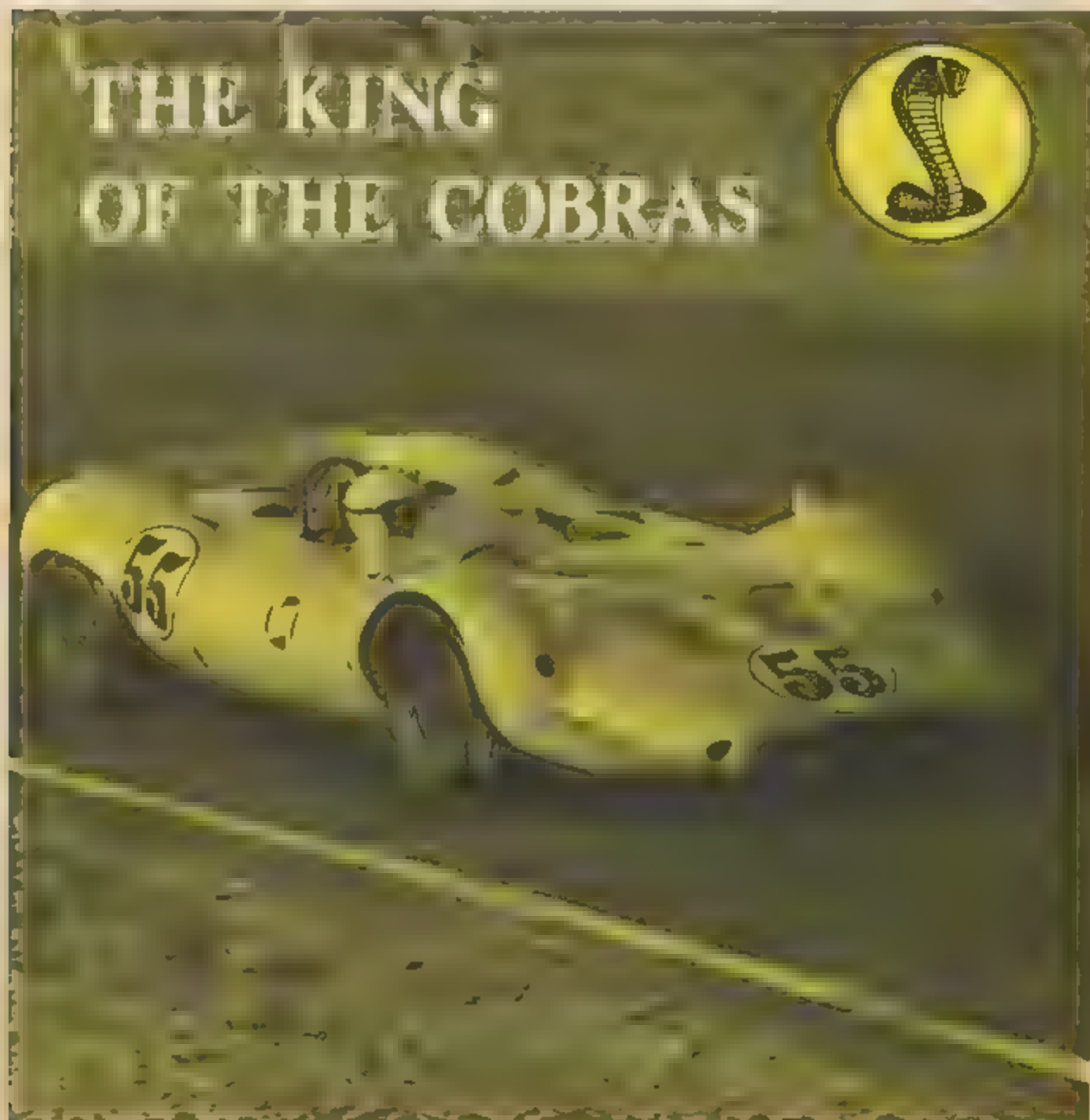
The 1967 Can-Am season was hardly a success for the Shelby King Cobra, but the car appeared to be suffering from a lack of preparation, resulting in indifferent handling and erratic delivery of power to the rear wheels.

With Jerry Titus piloting the vicious looking mustard yellow Cobra, the spectators had hoped

for some top flight performance, especially from a car coming from the Shelby stable. Unfortunately performance was not forthcoming, and the King Cobra ended the 1967 Can-Am series parked in the huge Shelby van in the Stardust Raceway paddock area.

It now appears that the 1968 Can-Am series will run without

the King Cobras, as Shelby is focusing his attention on other racing areas. It's a shame that these cars did not get the chance they deserved. However, the cars are a natural for the serious modelers, and at least two manufacturers (Lancer and Select Innovations) are now producing this body in clear plastic.





The #55 King Cobra sports a mustard yellow body, with fixed front and rear spoilers. The front spoilers are supported by a single rod, each.



The black numbers set on a white field, which is surrounded by a thin black border. Mirrors are silver, as is the radiator. Paint the roll bar flat black, along with the dash and steering wheel. The King Cobra rolls on fat Goodyears, front and rear.

Wheelbase measures 93", and the tread 56" and 60" front and rear. The car looks mean! That long "ant eater" nose was designed to suck up the McLarens—didn't quite make it. A good slot car, patterned after the big Cobra might be another story!



Number two in a series on improving the 1/32 scale cars. This month we add more speed and handling to

Monogram's Chaparral.

MODIFYING THE HOME SET CARS

The ready-to-run cars furnished with the home racing sets feature some of the best engineered and most rugged chassis in the field. Unfortunately, the needs of all types of set buyers, of all ages, mean that a relatively slow car with only a partially detailed body can be included.

With a bit of enjoyable modeling time and a few parts, you can make a far faster, better handling, and more realistic model racer from any of the home-set cars.

Our case in point, this month, is the Monogram series of 1/32 scale sports cars. Like other brands, these cars are also sold as replacement items. Even if you don't have a complete Monogram set, you may wish to purchase this Chaparral to add to your racing stable. A 330/LM Ferrari, Ford GT, and a Lola T-70 are available with the same chassis. Any car in the series retails for \$8.00 ready-to-run.

You scale buffs and full-size sports car fans may be interested to know that the Monogram version of the early "2"-series Chaparral roadsters are the cars that raced in the USRRC events at Mosport, Watkins Glen, Kent, Continental Divide, Mid-Ohio, Elkhart, Bridgehampton, and Laguna Seca during 1965. They were the last cars before the rear-mounted "flipper" and were certainly the most successful of all the Chaparrals. At most of the above races, one of the two cars entered was equipped with an exposed cooling duct over the nose and into the driver's face.

Monogram's version is highly detailed with even piano-hinged doors and Dzus body fasteners cast into the shell. For those concerned with scale, however, the car has about 1/8" too much wheelbase (apparently to make it interchangeable on the same chassis as the other 3 cars in the Monogram series). If this bothers you, or is illegal on the tracks where you race, there are few bodies as well worth the effort of shortening.

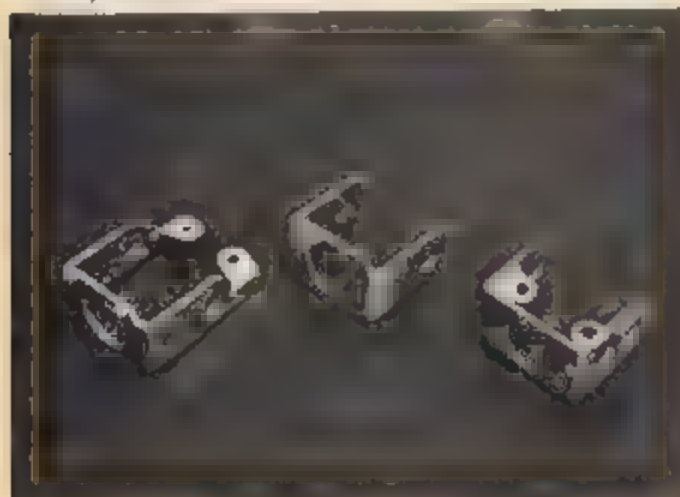




The ready-to-run 1/32 scale Chaparral furnished in Monogram's home racing sets is also available separately as #RS3034 at \$8.00. Well-detailed, but unpainted.

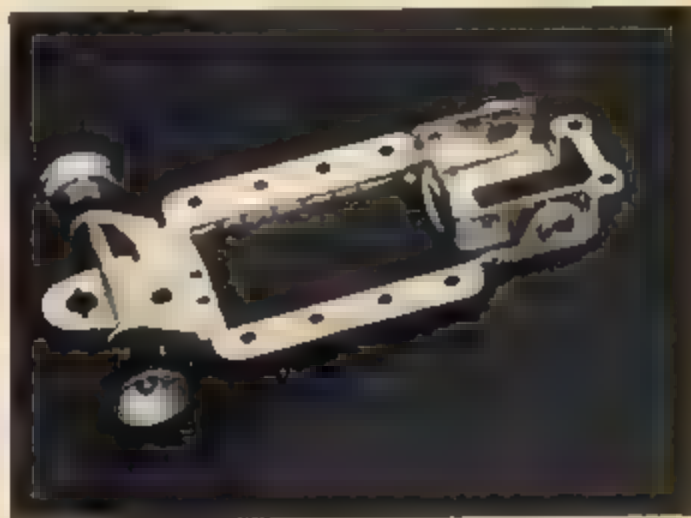


This home set car is supplied with the less powerful Mabuchi motor shown on the left. Later Mabuchi's (right) add speed and improve weight distribution.



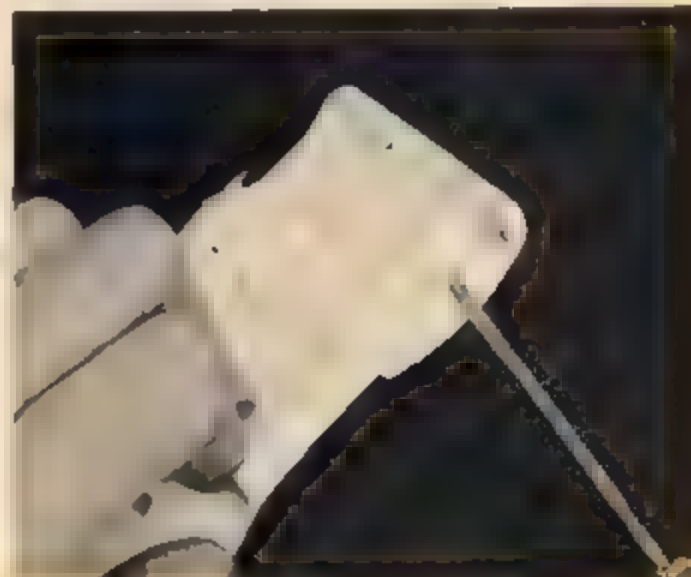
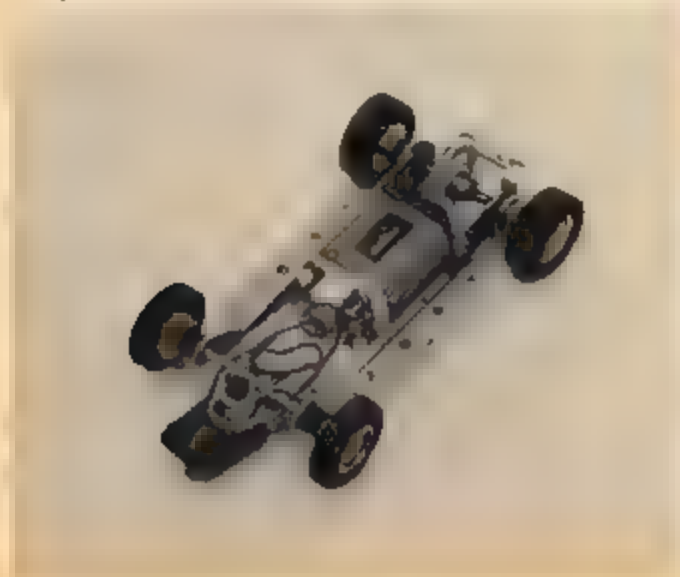
A monogram, Classic, or Revell motor mounting bracket is needed to adapt the better Mabuchi motor (with gear on magnet end) to the Monogram home set chassis.

A Cox "snap-lock" pickup is added to the front, with Revell wheels and Champion wheel inserts front and rear, and foam tires.



Extra oilite bearings hold new bracket in the chassis. Epoxy in place. Remove old motor brackets and excess chassis.

Slice off the melted plastic rivet heads that hold the interior and pry it free.





Trim away all of the interior but the rear mounting posts. Also cut out the driver, and detail paint him.



Cut away rivet heads and pry out the plated exhaust pipes and intakes.



Scratch off as much of the number stickers as you can with a fingernail. Remove the glue and backing with Carbon Tetrachloride. (Work outside with that Carbon Tet, please.)

Revamped body panels are ready for paint. Substitute a black tissue paper cover for the cockpit and glue the driver to it.

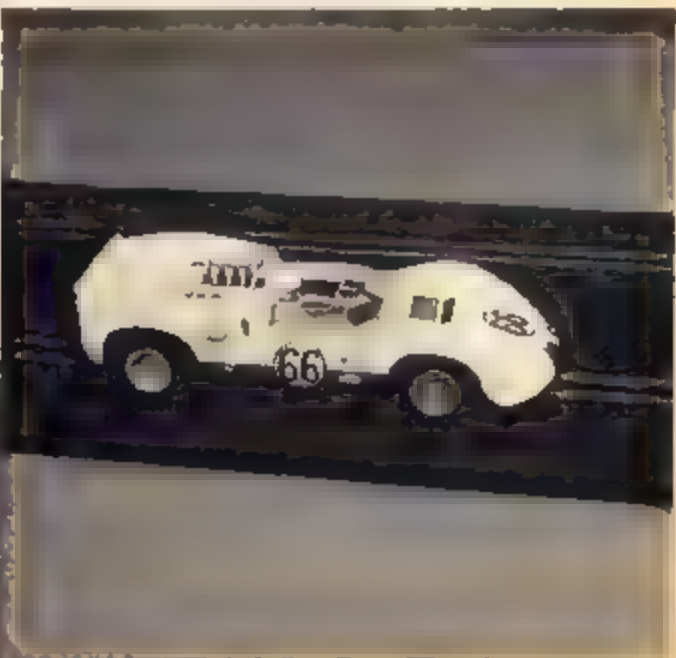


Body is given three or four coats of AMT white lacquer, allowing at least 4 hours between each coat.



Ravell and Cox decals are added after lower side panels are painted with Ulrich's flat brown, headlights and grill silver.

Chrome parts and windshield are epoxied in place for extra strength. Rear body mounting posts cemented in, and body attached.





LEE HINES—MEMBER CHECKPOINT TEAM

Just how do you become a top pro driver? For Lee Hines it started with model airplanes when he was a young boy living in Nebraska in the late 40's. Now that's about as far from being a slot car driver as you can get, but this is all a part of what makes Lee one of the most skilled pros on the California scene today.

Lee's first passion was free-flight model airplanes. He flew free-flights from 1950 until 1958 and by that time he had moved to Southern California and continued his flying experience. In 1958, Lee's interests turned to Indoor Hand Launched gliders and his success in this field has been phenomenal. In 1965, Lee flew a glider of his own design to a new world endurance record and had the plans published in one of the leading model airplane magazines. Since then Lee has limited his flying to major con-

tests, and just last year at the National Model Airplane Championships, Lee won his class in indoor hand launched glider competition with a plane of his own design. That's just half of it, 2nd thru 6th place were *exact copies* of Lee's craft! Also, in the outdoor class, Lee took 4th overall, while the fellow who took 1st was flying a plane which was built from Lee's plans!

Perhaps his success in model airplanes gave Lee the idea to try slot car racing, but whatever it was, success followed Lee into the slot car field. He started racing in 1963. He remembers his first winning car as a scratch chassis B.R.M. powered by a Pittman 196 B. Now enter John Cukras and Pete Zimmerman, as Lee recounts the event, he had the same B.R.M. and had not lost one race with the car for months until Pete and John showed up one night

for a weekly race and blew Lee's doors off with some funny Japanese motor. Well, Lee was pretty put out because he didn't deslot once and still lost by three laps!

Since then, the three have been good friends and are still racing each other regularly, with Lee running for Checkpoint Team and John running independently with Pete as his personal "Traco" motor bunder.

Lee began racing for Checkpoint late in 1966, and has been a credit to the team ever since. Much of his success can be said in one word, "Efficiency." He carries a book with him and after each race writes down every fact about the race, such as, place, track size and condition, lap times, motor used, chassis type and description, plus who won and how. Lee is now on his third notebook and can probably tell you anything about any track in the Los Angeles area in the past three years.

At the final *Car Model* race of the 1967 season, Lee celebrated the second anniversary of his Formula I Chassis by placing it in the main event! Some people didn't believe it at first but it's true, and that's just one example of his workmanship. Lee winds his own motors, and also sells them to customers on order. These motors, called "LEE JET" are fantastic. At the Classic Speedway *Car Model* race when most of the hot thumbs were running 7-29 gears, Lee was running 9-25, and he made the main event. I've heard his motors, but I don't believe them. When everyone else is getting amp-sucked, Lee will rocket by you like he had his own battery.

Lee considers his best race of the year the final *Car Model* race at Rolling Hills Raceway in Torrance, where he took third on the bad lanes, letting only Doug Henline and John Cukras get by him.

As for his choice of competitors, Lee said that under even circumstances, John Cukras and Terry Schmid are the toughest to beat.

At 29 years old, Lee can look back on a very successful competitive career and also look forward to even greater success.



Down with controller confusion! Here's the straight scoop on what's available.

THE 1968 MC&S HAND CONTROLLER SURVEY

The one point that many of us overlook when picking a controller, is that it must be able to control the cars we race, using the driving techniques we have learned (or are learning) on the types of tracks we most often race on. No fancy ad claims, or idea that "The winner of the XYZ Championship used it, why don't I?" will help to match a controller that doesn't fit your hand, or a controller with the wrong resistance rating (ohm rating) to the conditions under which you race.

A prime point is comfort and ease of operation by your hand and thumb (or index finger). Some controllers are just too small for many of us, while others are

almost out of our physical reach. The only way you can find out is to actually try one for fit.

The chart we present here will go a long way toward helping you to pick a controller that will at least be electrically capable of controlling your car. Since track power supply, the car's gear ratio, and degree of motor hop up will all effect the amount of ohms resistance needed in the controller, we have arbitrarily divided the controllers into groups for HO scale racers, home set racers, club, or commercial racers. If you drive a car with an extremely "hot" re-wound motor, relative to others who race with you, you will want to pick a controller with a lower ohm rating in the HO, home set,

or club/commercial category that applies. You can buy resistors of a different value to "tune" some controllers to match your track, motor, and gear ratio.

Controllers equipped with fuses will usually last longer than those that are not, since most of us inadvertently hook up wrong to the track at one time or another. Better the fuse blows instead of the controller!

The final factor influencing your choice of a controller will be price. Here, all we can do is tell you how much. You'll have to raise either the money to buy the best or settle for less; although some of the less expensive controllers will often do the job if you find them comfortable enough.



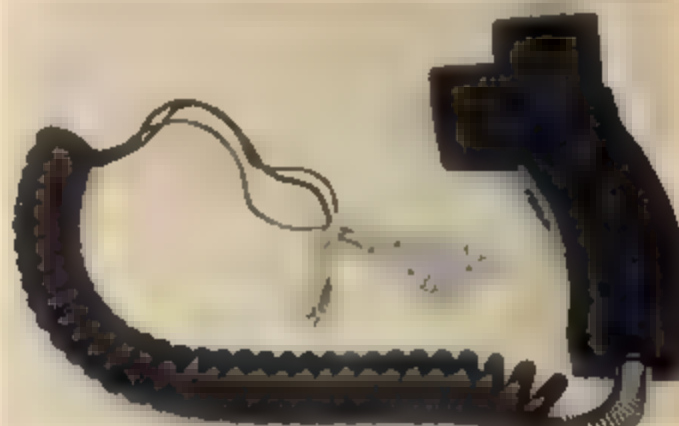
Aurora #1347 HO controller uses conventional thumb operation to compress a series of wafers for speed control. Good engineering.



One of the most popular controllers ever—and with good reason—is the Cox. Several versions available for home, club, or commercial racing. Mark VII is top of the series.



Atlas 1200 series controllers are good for HO cars have excellent control.



New Candee "Master" controller has a different style resistor, is cool running.



Atlas 1500 series units are designed for the more serious club or commercial use. Buzzco controller has an unusual racking action. Suits a wide variety of cars.



Eaton controller offers thumb operation, for HO scale cars only. Aurora 1/32 scale home sets include this controller. Heat is well isolated from hand.





Model Rectifier Corp. "Varipower" #1200 Endura controller has variable resistance, adjustment from 5 through 15 ohms.



Revell 1/32 scale home set controller is matched to motor requirements of cars.



Model Rectifier's Endura 800 has plug, is available in 4 different ohm ratings.



Russkit 811 series was first controller to offer index finger operation.



Ram controller is sold in kit form, at a considerable savings.

Ram controller features exposed resistor, simple design, and variety of ohm ratings.



Russkit 810 controller is available as kit or assembled.

Thoric is rare transistorized design, well suited to commercial race tracks.





Tower-Stat is one of smallest designs. Sold in ohm ratings from 4 through 60



Tyco HO hand control can be locked into position for one man racing.



Super-Stat by Tower is only controller to feature resistors in a remote box to isolate their heat. Variety of ohm ratings.



An adaptor socket is a good investment for controllers equipped with plug-in connections. Can prevent burned out controller on unfamiliar commercial tracks.

CHART OF POPULAR HAND CONTROLLERS

BRAND	NUMBER	OHM RATING	RECOMMENDED USE	REPLACEMENT RESISTORS	PROTECTED BY FUSE	PRICE
Atlas	1271	45	No	25, 85 ohms	No	\$2.98
Atlas	1571	12	Club/Commercial	25 "	Yes	\$4.00
Aurora	1248	85*	No	None	No	\$3.49
Aurora	1847	85*	No	None	No	\$2.49
Aurora	8210	25	Home Set	None	No	\$3.98
Buzco	"Permanent"	12*	Commercial	None	No	\$5.50
Champion	ARCQ 400	8	Club/Commercial	5, 8, 12 "	Yes	\$6.98
Cox	Mark VII	5, 7½, 10, 15	Club/Commercial	None	Yes	14.98
Cox	Mark V	7½	Commercial	15, 25 "	Yes	\$7.98
Cox	Mark IV	15	Club/Commercial	25 "	Yes	\$7.98
Cox	Mark I	30	Home Set	15, 25 "	Yes	\$4.98
Candies	"Master"	8	Commercial	4 to 20"	Yes	12.98
Eldon	3204	85*	No	None	No	\$2.98
K&B	707	8	Commercial	18, 25 "	No	\$6.95
K&B	706	18	Club	8, 25 "	No	\$6.95
K&B	705	25	Home Set	8, 18 "	No	\$6.95
MRC	600	12	Club/Commercial	5, 7½, 10, 15	Yes	\$5.98
MRC	800	5, 7½, 10 OR 15	Club/Commercial	5, 7½, 10, 15	Yes	\$7.98
MRC	1200	5 THRU 15	Club/Commercial	None	Yes	11.98
Ram (kit)	K1400	5, 7½, 10 OR 15	Club/Commercial	5, 7½, 10, 15	No	\$3.95
Ram (assembled)	1400	5, 7½, 10 OR 15	Club/Commercial	5, 7½, 10, 15	No	\$5.95
Reval	R-3651	25	Home Set	None	No	\$4.00
Russkit	811	10 OR 15	Club/Commercial	10, 15	Yes	\$7.00
Russkit	810	15	Club/Commercial	None	No	\$3.50
Russkit (Kit)	810-KD	15	Club/Commercial	None	No	\$2.75
Strombecker	9305	25	Home Set	None	No	\$3.00
Thoric	Transistorized		Commercial	None	Yes	\$8.98
Tower	Tower-Stat	4, 5, 6, 10, 15 20, 30 OR 60	Club/Commercial Home Set No	5, 10, 15, 20, 30, 60	No	\$4.95
Tower	Super-Stat	1 THRU 40	Club/Commercial	1 THRU 40	No	14.95
Tyco	S-606	85*	No	None	No	\$2.49

NOTE These ohm ratings are approximate. Controller design will vary rating slightly

RESULTS

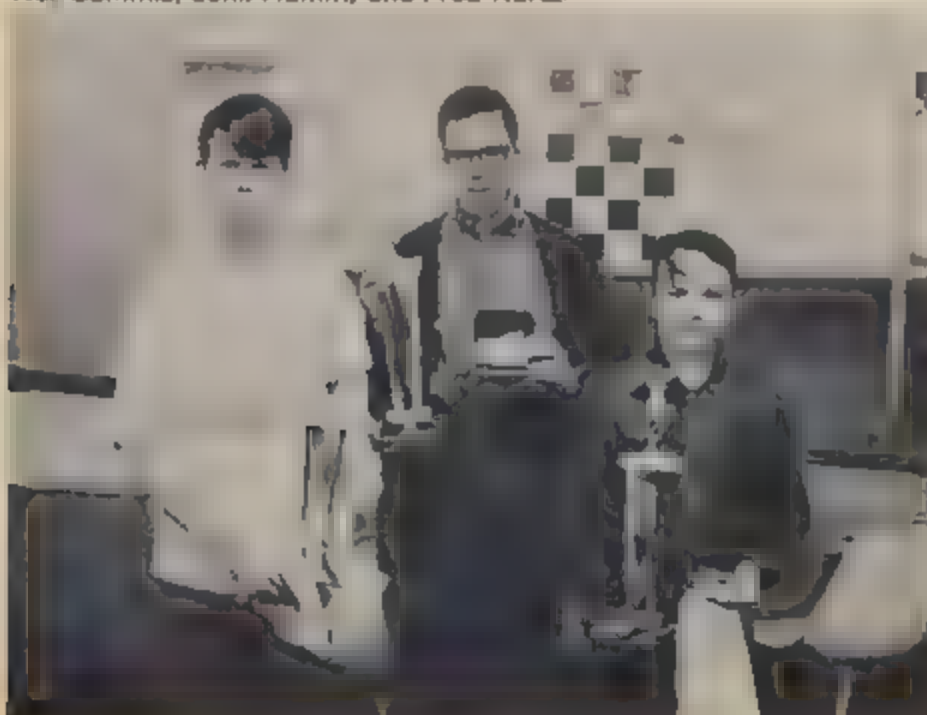
OF THE MURA FINALS

The final showdown race in the hot Eastern Mura Racing Series ended the season with a bang!

By Al Pappas



'Big Bob' Thompson walked away with the big one in the Invitational race. Winners in the Intermediate Class, from left to right: Neil Sammis, John Humm, and Fred Kurtz.



Three months of battling for points and prizes reached the high mark with the big Mura final, last month at Aurora Raceways in West Hempstead.

Drivers from every raceway that had qualified in all classes lined up for the one that would end it all. As in the past, advanced, intermediate and open novice class drivers ran together but scored separately.

Entered also in a special invitational class were drivers from raceways showing support for the coming series. Accounted for were representatives from Glen Oaks, Champion, Hobbytrack, Bonnevillie, Village, Vic's Family Hobby Center, Show & Go, Aurora, and EMMRA.

To say the action was *quick* would be an understatement. It was wild! Driver after driver moved up to battle for all they were worth. They were all there, the middle aged to the nine year olds, with Debbie, our young miss from Bonnevillie as the only girl in the group of forty-eight qualifiers.

Multicolored machines zipped into the short bank, and blazed down the straights into the other bank as the clock ticked away during the heats.

This is not an easy track on cars, and a mistake can finish you. And there were mistakes. One car totaled out into three pieces! Another was demolished as it rode up the bank wall and smashed the overhang. Several quit, as axles were bent into ridiculous shapes. Amazingly enough, no one was forced to quit because of motor trouble.

The pre-race favorite, Pete Fusco, was unable to run as he did not sign in early enough.

Pete was high man in the leagues this season and was expected to be the man to beat on this high speed track.

The open novice league was an easy win for Ed Brunnhoelzl of EMMRA, with Al Ing and Jackie Ryan, both EMMRA drivers, right behind him. Jackie would have had it, but lost his braid in a hard spill. Finishing a very strong fourth was everybody's favorite, our girl Debbie, of Bonneville.

The intermediate class was a hard-fought contest between John Humm of EMMRA and Fred Kurtz of Champion. It was during one of these heats that a driver, who shall remain nameless, was smacked so hard in a turn that the only thing left on the track was the solder joints!

Fred pushed for all he had, but John pulled it out by a close margin. Finishing third was Neil Sammis.

Just about here the board showed Big Bob Thompson way out in front in the invitational, with Vic Cabrera of Glen Oaks in second. Big, and we mean big. Jim Greenaway was running strong until he spilled, and a corner marshal had to do hand stands to get him back on.

Dennis Angelillo of Village, with Bill Sohl and Bob Gaule of Vic's, put up a good show but just didn't have it for this one.

The advanced class was a toss up right to the bitter end. Bob Kerley of Champion, usually a very tough contender, had a disastrous final heat. John Dillon of EMMRA struggled all season with

near wins, and his bad luck held again.

As the scoring progressed, it seemed like Joe Ambrose of Show & Go was going to be the high man. Suddenly Mike Roth of EMMRA passed him on the score board. No sooner was his score up than Pete Bissland of Aurora out-scored them both. Did it end there? NO! Coming out of the very last heat of the night was the New Mura Champ of New York, Chip Chesina of EMMRA, finishing in a blaze of glory, to pick up all the marbles.

Awards included giant trophies, transistor radios, Riggen shirts, tires and wheels, motors and Mura armatures. Top prize was a two-channel, all transistor Raytheon walkie talkie set, compliments of Ron Mura.



The "Big Three" happy winners. Left to right: Mike Roth, EMMRA, Chip Chesina, EMMRA, and Pete Bissland, AURORA. Mike also won the Concours event.



The Open Novice class went to Ed Brunnhoelzl

SPONSORED BY: Mura Products

PRODUCED BY: Stateside Dist

DIRECTED BY: Al Peppas

TIME: Fred Paperelli

COUNT: Ed Ringland

START: Charles Bowman

ADVANCED CLASS —

- I Chip Chesina — EMMRA
- II Pete Bissland — Aurora
- III Mike Roth — EMMRA
- IV Joe Ambrose — Show & Go

INTERMEDIATE CLASS

- I John Humm — EMMRA
- II Fred Kurtz — Champion
- III Neil Sammis — Show & Go
- IV Larry Archer — Show & Go

OPEN NOVICE —

- I Ed Brunnhoelzl — EMMRA
- II Al Ing — EMMRA
- III Jackie Ryan — EMMRA
- IV Debbie Cavalete — Bonneville

LEAGUE HIGH MEN —

- Pete Fusco — EMMRA
- Joe Ambrose — Show & Go

TOP CONCOURSE —

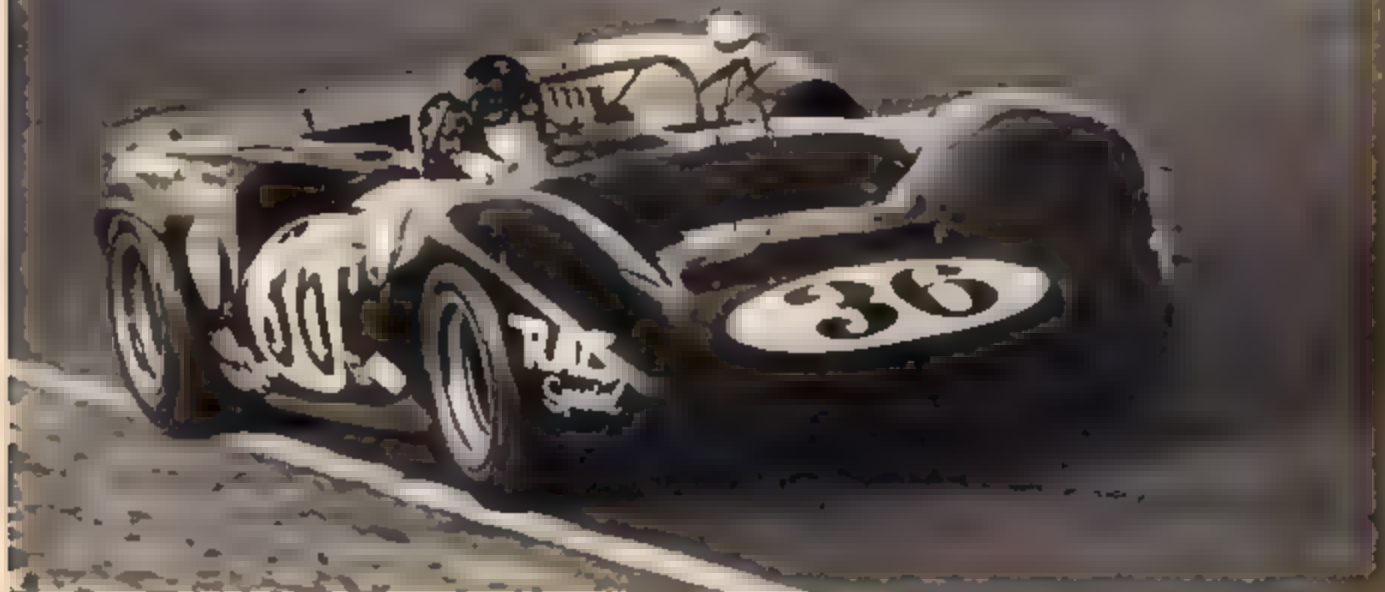
- Mike Roth — EMMRA

HIGH RACEWAY TOTALS — EMMRA

INVITATIONAL RACE —

- I Bob Thompson — Hobbytrack
- II Vic Cabrera — Glen Oaks

ROCK 'N ROLL LOLA



The next time you get a look at a fast car at the local raceway and think that the body is falling off, you should look again. That's right, the body *is* falling off! Even on close examination it appears that a few solder joints have popped apart, but the loose shell is no mistake. The moving body mount was made intentionally.

Tilting bodies are the latest way to cope with the corners. There have been many applications of the principles of "rock and rolling" bodies, so MC&S put Speed and Tech writers Chris Chan and Glen Toma to work on a project to develop a current race car with the most competitive system. Upon completion, the car was to be campaigned on the pro circuit against all the thingies with similar set-ups.

The first race entered was for sports cars so the Dynamic Sunoco Lola was used as the shell. This lightweight release is very low, over three inches wide, and has a long nose-short tail shape that works well whether or not the body mounts are loose. Other components gathered were a few feet of 1/4" .032" brass plate, some 1/16" brass rod, and lots of .023" piano wire. A Russkit #795 rear motor mounting bracket, Dynamic flag holder and pickup, Cox gear, Associated set-screw wheels (rear), Riggen Mini's (front) and

a hot Mura wind. It takes a lot of motive force to get all of this going fast so the #25 Mura with the latest Magnum 88's was just the can for the high amp L.A. tracks. These new Magnum's are a worthwhile addition to Ron Mura's line because, although they are even stronger than Arco's, their contours allow better cooling and higher rpm.

The frame's basic assembly follows most of the traditional techniques with the exception of the wide use of piano wire, which is quickly becoming a favorite material among the pros. Actually the chassis itself has only two rods. The door hinge body mount system is entirely piano wire "cage" layout. It is hinged too, so the brass plates of the frame can remain stationary while it moves up and down. The front axle is set up with the now commonplace "Cuk-ras" slop. The rear axle layout uses the oil packed bearing technique with Dynamic bushings. A seven rod drop arm was constructed for weight and strength with the rods slightly tapered towards the center. The two inner rods are bent outward to act as pick-up stops. These stops work best now that the cars are so heavy and tires are so precision made that in some cases the drivers can get their cars into acute drifts without popping the slot and the stop

assures them against any "360's" coming out of turns. An added 5 gram weight nails the pick up down even a bit more.

The car's debut occurred just 14 hours after its completion, at Crossroads in Northridge, California. Unfortunately the second car wasn't completed in time so a comparison couldn't be made. Chris came out of his short retirement (during a brief college recess) and qualified it halfway down the field with just a few laps practice. In its first heat it was clearly the fastest car in the corners despite a circuit breaker hang up and it advanced to the next heat. Here, after forty laps on a gutter lane the MC&S car was only two laps down from Keith Tanaka's Main winning similar car (also on a gutter lane) and proved at least to Chris to be about the best handling car on the track. In both heats the car was the only one equal to Keith's.

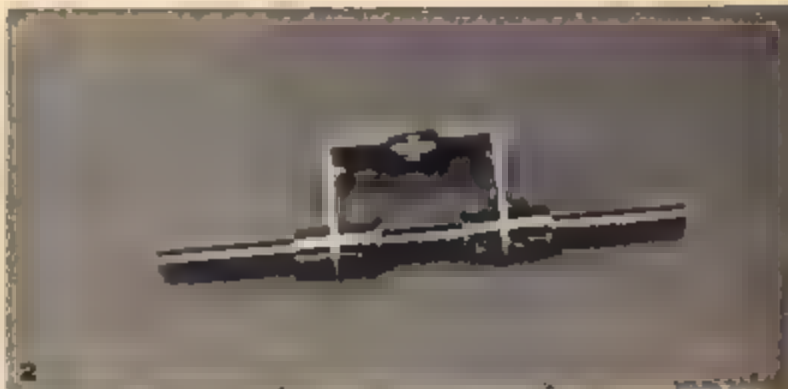
In the personal opinion of all of the Speed and Tech drivers who tried it, the "flopping Lola" set new standards in handling and controllability. It cornered with complete predictability and performed beautifully on even the worst lanes.

So when you see a floating body at the races beating the other hot thumbs don't yell "Hey mister your Lola's loose." Go break yours too.

Moving body mounts and "floating" bodies are the latest developments in the 1/24 scale pro world. Here's how to build the hot setup.



Take a length of 7/32" brass tubing and cut 2 pieces, 3/8" long for bearing housings



Ream the bearing holes of the bracket to accept the bearing housing. Then set them up so the rear tread will be 3" wide with the rear wheels mounted.



Bend a 1/16" brass rod to the shape shown, and solder it to the bracket



Line up the chassis in Champion's Align-O-Jig, then bend and solder the runners to the front axle tube.



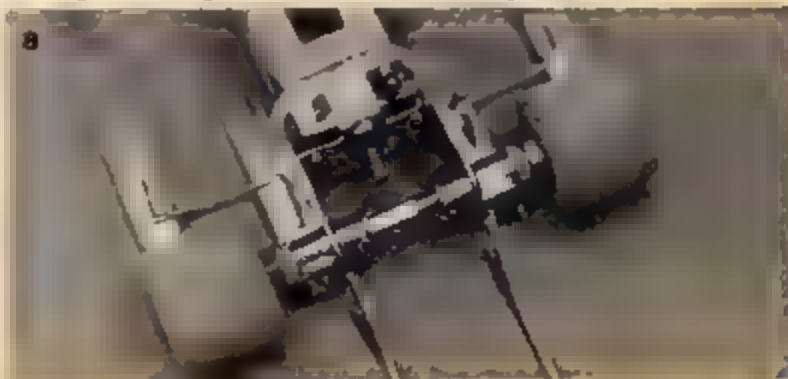
Bend 2 pieces of .032"x1/4" brass strip in the manner shown and solder them to the chassis.

Solder the piano wire supports to the main chassis member, then place a piece of 1/2" wide brass strip between the chassis and the outrigger for uniform spacing



Bend 4 pieces of .023" piano wire to act as outrigger supports.

There are many types of bracing. The style shown is only one way to construct a sturdy rear end





9
Whichever way you brace the rear end, make sure it is strong and the weight is down low.



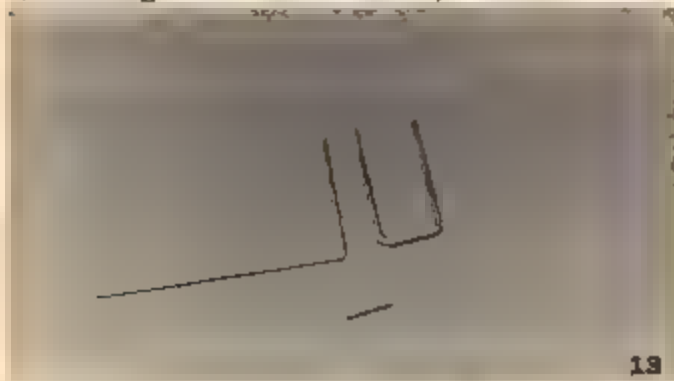
10
Bend some piano wire in the shape of a "U" and solder it to the brace, then to the bracket.



11
Cut a piece of 1/8" tubing with approximately 1/8" of overhang on each side for the pivot tube.



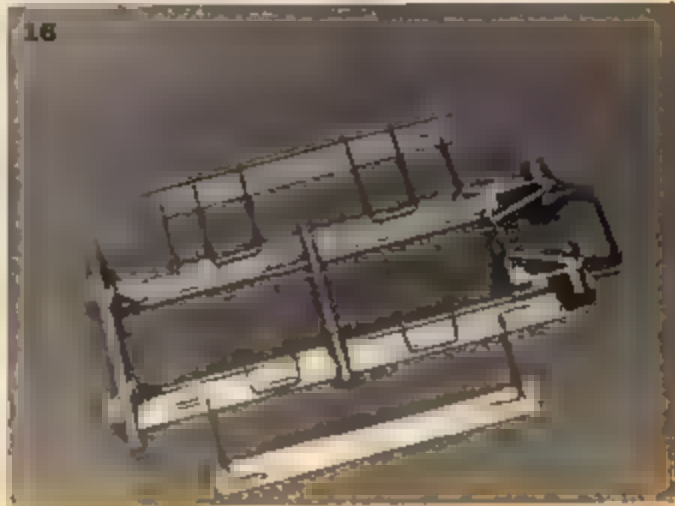
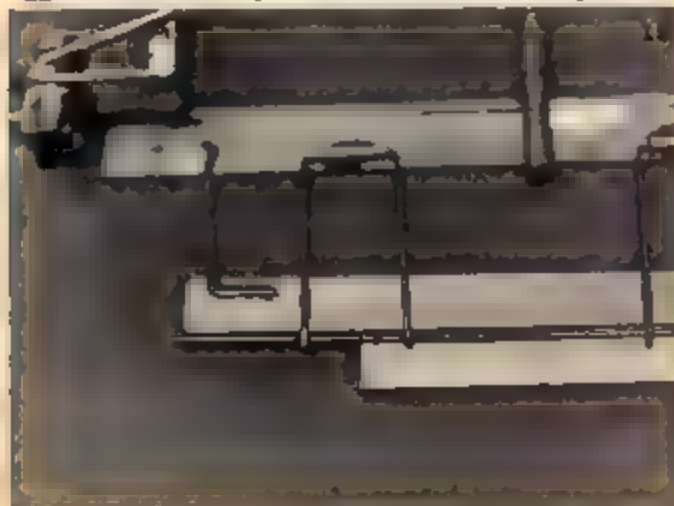
12
Cut the pivot tube into three pieces so that two will act as the pivot housing and the other as the pivot. Use 3/32" brass rod as the pivot pin.



13
Cut 4 pieces of 1/16" tubing, 5/16" long for the pivot housings of the body hinge. Then bend piano wire in the shape of a "U".
Cut .023" piano wire slightly longer than the outrigger to act as body braces. When soldering them



14
Solder the pivot tubes of the body hinge on the main chassis member as far apart as possible.



to the hinge, use the technique shown to prevent soldering the brace to outrigger



Solder a secondary body brace to the hinge as shown. Since small diameter piano wire is very sharp, solder onto the ends of the body brace small



Brace the body hinges, using piano wire. The braces will also act as supports for the body mounts.



Use a #50 drill and drill a hole in each bearing case, to create an oil reservoir, the latest in chassis tricks.



Construct a drop arm either by following the photo, or using your own design. Just make sure it's strong.

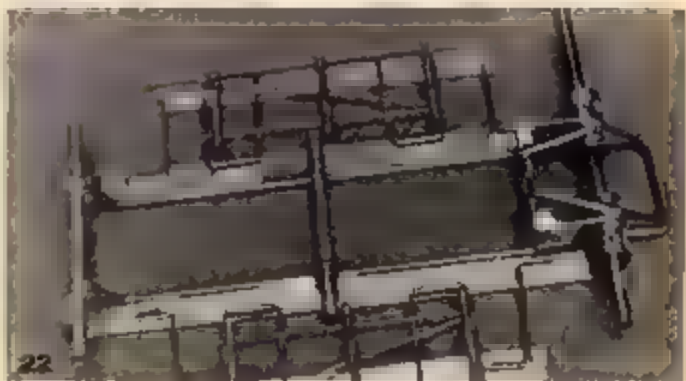
Band a body hinge "limit" from brass rod so it also acts as the upper limit for the drop arm.



pieces of 1/16" tubing to protect yourself from being hurt.



Add brass washers to the bearing case, thus giving the wheels a smooth surface to push against resulting in less friction.



Cut 6 body mounts from 1/16" tubing. Mount 3 to each hinge and space them evenly.

Paint and detail your favorite handling body, install a hot motor and you're set to rocket.



Southern Sampling



by FLOYD MANLY

Each month the opening sentence of this column is about as hard to get out as the first olive out of the bottle. After I get the first word out the rest comes tumbling after. Let me pull *one* word out and watch what happens. ARCO, Arco Nationals, Arco Nationals at Atlanta! In December the fastest drivers in the U.S. gathered for 4 days of fantastic exhibitions of driving skill, wild equipment, and bad luck. The equipment was fast, very fast, and very temperamental. The driving skill was superb and very consistent. In my proudest win I've never been able to whip a car around the track, lap after lap, the way it was done up there. My best car, at it's best, wouldn't hold a snowball's chance of staying with the ones that can. The bad luck? I *have* had my share of that.

The drivers, Cozine, Cukras, Ursaner, Schmidt, Anderson, etc., all put their pants on the same way we do. They're just ordinary people. They get nervous, sweat, mumble to themselves, sleep under the track, and drive like we all wish we could. Some needed to shave and were bleary eyed from staying up all night getting their cars ready. *All* had the concentration needed to slam a car into each corner perfectly, every lap.

The equipment was fast, but there was nothing special about any one car. Pictures have been published on all the winners. Each is different. Some used brass rod, some sheet pan, some had piano

wire. A few used Dynamic's "Sloppy Sam" floating body mounts, and swore by them. Others ignored this latest innovation and won. Controllers were Cox, Russkit and MRC. Tires were Champion, Riggen, Cobra, Mini-Wheel. Motors were home-winds, factory productions from Champion, Cobra, RX, U-Go, and all the other goodie makers.

So there you are. The Grand National Arco Races. You could be there, or a winner at *any* of the big races. All you need is to tinker with what you have until it gets faster than you can handle, then practice until you need something faster! Then build it.

Which leads me into a few words about goodies. Dynamic's new "Sano" chassis is the latest in competition offering for the pros, and people who want to be pros. The hinged "Sloppy Sam" mounts let the body float over the frame to eliminate vibrations called "harmonics" that a flexing body can set up to effect handling. The price of \$6.29 is steep if you want just another frame—but just about right for a competitive, quality chassis.

Gear-wise, Riggen is the latest to offer an excellent set of crown gears. They make all the usual claims about molding gear and hub together for concentricity, tensile strength, etc., etc. I bought a couple, and for what it's worth, I like 'em! And that is not a paid commercial announcement. Try 'em. They're going to make a dent in Weldun, Cox, and Williams. 25, 29, 31 or 33 teeth for 45¢.

In the body department, we have a 3 way race going on between Lancer, Dynamic and Russkit. Hoboy, don't ask me to pick one. Lancer has the detail and very latest styles. Dynamic has the edge on performance by nature of being out of scale. Russkit is right in there too, with their ultra-thin bodies that act like no body at all. Put your money down and take your pick. You'll get your money's worth with any of the three.

Speaking of money's worth. I sure called a shot wrong about the Champion motors. I went into a

lengthy discussion about which of their 517's would be most popular. I was as wrong as Sampson whispering into Deliaah's ear. Nobody buys the #28 wire, the #29 wire was discontinued and the only reason to buy a #27 wire is that the #26 wire is all sold out. I don't know of a custom winder that has put out anything as "boss" as this one.

Cox is right in the thick of new comer-outers with their set-screw front and rear wheels, and stainless steel axles with pre-ground notches. The wheels are mag-type with hard rubber tires up front. I wish they were harder or even plastic. To get the necessary slide with rubber you have to coat them with varnish or fingernail polish.

Here's a couple more guys looking for pen pals to exchange ideas and lies, er, stories.

Stu Prestin, 35 Oxford Rd,
Dubinfield, Cheshire, England.
John Norrcott, 12 Boundry,
Mossley, Janes, England.

Or if you want to hear from the other side of the world, drop a line to:

E. Hunter, 19 Delamere Ave,
South Perth, W.A. 6151
Australia



They're waiting to hear from you and they'll answer your letters.

If I had a 21 gun saluter, I'd fire a 21 gun salute to the new shop that just opened here in Orlando, Florida. Irv Langille unlocked the doors to the first new track in this area in many-a-moon, and he's setting up regular racing programs for all classes of racers. Another sign that slots are coming back. The Edgewood Hobby Center on Corrine Drive, just outside the Orlando AFB front gate, fills a gap we've felt for about a year. So while the hula hoop is dead, slots are coming back!

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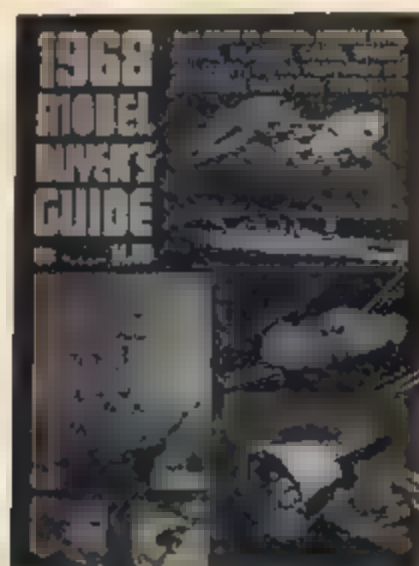
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THE WORD FROM THE WEE WORLD



"HO... is where the future of all slot racing is going to be. Yes, there will always be $\frac{1}{32}$ and $\frac{1}{16}$, but the few manufacturers can't make it on those scales alone. The pros make most of their own goodies and there sure aren't many big shops around."

That little piece of philosophy is an excerpt from a letter I received recently from Mr. Richard Harrison of Monroe, La. Richard owns and operates The Hobby House and is without a doubt one of the most enthusiast-minded, on-the-ball manufacturer on the HO scene.

Richard's list of HO-up accessories and custom services covers an unbelievable three typewritten pages. It includes stuff that existed before only in the dreams of HO enthusiasts. Things like independent front-end kits, magnet shim stock, super-lite bodies (Richard claims they are even lighter than vac-formed bodes), etc. He also has all the more plebian stuff you can get everywhere else. I strongly suggest that you write the Hobby House, Dept. MCS, 803 Louis-

ville, Monroe, La. 71201 and ask for the free price list. Please include the six cents return postage and help of Richard pay his stamp bill.

Richard asked me to pass along a couple of tips to my readers. Listen up, cause this is one guy who knows what he is talking about: (1) Use only silver brushes with rewinds. (2) Solder the contact part of the pickups with silver solder to keep the shoes from pitting and burning, causing a loss of power. The solder melts away and will have to be replaced frequently, but it will not burn. Thanks, Richard.

Let's all get one thing straight right now. I will never, never rave about a product just because it's made by a big manufacturer!

This comes up because with my first order, Richard included a note asking me to "SAY SO!" if I don't like some of his or anybody else's stuff (that should give you an idea of the kind of guy Richard is). Richard, you're not the only one who hates the phony build-ups some writers give big manufacturers.

Lancer's nine new body styles (reported on last month) obviously fill some mighty big gaps in previously emaciated HO starting grids. The Can-Amers are especially welcome. Couple that with the prospect of more shells in the future, and the HO body field couldn't look better.

If Lancer does extend the line and if they follow the pattern of their $\frac{1}{32}$ and $\frac{1}{16}$ series, the next new body style will be the Indy Turbine, followed by the McLaren M6A, King Cobra, Match, Honker II, Ferrari P/4 Can-Am, and the Chaparral 2G, in that order. I have heard that Lancer has no plans to continue the line beyond the Nine, but if the Nine are successful — and they can't miss — I don't see how Lancer can afford not to press on, what with their being umpteen times as many HO-ers as big boys.

In the future, I would like to see the Lancer shells come pre-

trimmed and complete with driver, complete detail, and authentic decals. The price would have to go up, of course, but it would be worth it.

Things are really starting to pop over in the HOCCI pan. How about that race report a couple of months ago on the first HOCCI Invitational? My belated congratulations to all entrants and winners.

I hope you noticed a few of the interesting things connected with this race. First, the Aurora powerplant is definitely number one, nation-wide. Second, there was a truly heart-warming amount of industry support for the race, with almost a dozen outfits sending awards to the winners. And third, the present HOCCI classification system was shown to be more than a little weak.

That is, there were some problems as to where to put a few of the cars. There shouldn't have been any problem about the Cobra. In the early '60's it raced in FIA GT/Prototype races and still races in SCCA A and B Production classes. Add a scoop to the Aurora AC body and it becomes a reasonable facsimile of a Cobra 289 or 427.

There are other cars that can legally race in two classes. The Chaparral 2C cleaned up in the '64 and '65 Group 7 races and also won at Sebring in '65. Both the Corvette and Mustang GT (in Shelby form) have raced in both GT/Proto and A-B Production. Take the top off the Ford GT-40 Group 6 car and you have Chris Amon's '65 Group 7 GTX1.

The only real classification botch-up I noticed in the race was the placing of a Camaro in GT. The Camaro is a sedan and races only as a Trans-Am sedan, an SCCA A sedan, or a drag-strip funny car. It should never be placed in either GT or Sports.

It's a real mess, and the only way to clean it up is to revise the classification system. Jose Rodriguez, Jr., HOCCI's public relations man, informs me that

HOCCE is planning to revamp the entire rulebook soon. The new book will resemble the famous NAMRA rulebook. If you have any suggestions, better get them in the mail soon to the Competition Committee of HOCCE.

It seems that nobody really loves mail-in races, least of all me. But, for the present at least, Jose assures me that all HOCCE events will have to be mail-ins. In his words: "We don't like the idea of mail-ins any better than most, but you just can't organize several thousand people all over the country and have them meet in various locations to race, at least, not yet."

According to Jose, what HOCCE needs in order to create a national calendar "is not just individual members, but groups that could be in contact with other groups and race against each other." If you would like to join or start a club and are, as far as you know, alone in your area, Richard Harrison can supply you with a list of five HO-ers near you for only 25¢.

All of us here at the Spartan Racing Team are really excited about this interclub racing thing and hereby issue a formal challenge to any other well-organized clubs in the Texas Panhandle and adjoining areas. Write to us at 1137 Sierra Dr., Pampa, Texas 79065.



A nice accessory for the guy who demands the ultimate in upkeep for his car is Richard's new "Mo-To-Clean." The stuff comes in two bottles labeled "Clean"

and "Rinse" and really cuts through the thickest accumulation of racing grime. It is available only from The Hobby House and sells for fifty cents.

Mr. Maurice E. Winn, president of Twinn-K (AJ's parent company) informs me that the ultra-popular AJ's 007 silicone tires will be changed soon. In the future, .007s will come equipped with a new, smaller wheel. The new wheel replaces the Aurora "Hot Rod" hub used on the current .007s. According to Mr. Winn, AJ's decided to change to a smaller wheel after receiving numerous requests to do so from the public. It's nice to know that at least one company listens to the racer.

RUMOR HAS IT THAT . . .

. . . Aurora is preparing to follow the "Matchbox" trail. Richard tells me that Aurora is ready to unleash 72 (!) "Cigar Box" (?) cars which are supposed to be HO slot-car bodies riding on die-cast frames. For collectors these cars have obvious importance, but Richard thinks most of them will also fit the T-Jet. If so, 72 new bods should fill quite a few gaps. Oh yes, they will sell for 65 cents apiece.

One of last month's rumors has been confirmed, at least partially, but the other has been shot down in flames. Yes, Aurora has a new body style (I don't say new car because the T-Jet still lurks beneath), the McLaren-Elva Mk I, if the pics I have seen speak truly. Hope Bruce doesn't use his royalty money to make the M6B faster than my hero, Jim Hall, again this year.

It's a typical piece of Aurora logic to go to the trouble of producing a three-year-old body style when there is an abundance of newer cars still absent from HO ranks. But then, it does fill an important gap rather nicely. No word on the reported Prototype. Anybody want to bet against a P2 Ferrari?

As for the super-magnet rumor, ~

I'll let Richard (the Expert) break the sad news: "It's not just a matter of putting stronger mags in the car. You must change the wind and probably the armature metal. Anyway, in the present Aurora chassis I'd say super-mags aren't worth it." Sob.

MANUFACTURERS TAKE NOTE: Well, another HO manufacturer has joined the club and still no separately-available driver figure. If an HO-er needs a driver figure, he must either cut the head and shoulders of a "spectator" driver off (watch the Coke bottle) or cut one out of an old body. Both these methods are expensive. All I want is a cheap driver figure complete with helmet, goggles, and partial steering wheel. Is that too much to ask from a multi-million dollar (would you believe penny-ante) industry?

Lancer really came through for me this month with the three Can-Am bodies, but still no F1s, so I'll try again: *Formula One cars do exist.*

There hasn't been time, of course, to receive any entries for the Table Top contest. The first winner will be announced (I hope) next month. If you don't make it, don't despair, there's always next month.

One final note. Let's let AJ's fine example of bowing to the requests of the ordinary HO-er be a lesson to us all. The other, more hard-headed manufacturers can be swayed, too, if enough people write enough letters. So, between now and next month I want you to get busy and write a storm of letters to the manufacturers, to HOCCE, and to me. Maybe, just maybe, we can really get HO rolling, okay? Okay.

Whup, it's apology time. Remember that second HO column I told you to look for this month? Well, don't look too long because it's not here. I'm very sorry, gang, but I just couldn't make it this month. Camera problems. Maybe next month. I hope you find it (a technical, construction-type feature, by the way) worth the wait.

MAGNETIC FIELD INTERPRETATION

Here's the straight story on one of the most vital subjects in slot racing, by one of the most knowledgeable experts in the field

By Tom Malone

As our little photo story reveals, we are *not* measuring the strength of the various magnets at all, nor can we determine which magnet is the strongest or the weakest by using this instrument. The field indicator gave a reading all right; but of what?

Let's start at the beginning. The field meter, or indicator, read zero for all practical purposes, with the magnets installed in the case but without an armature in photo #1



Magnets in the case, but no armature and no reading.

The explanation for this is that the magnet closest to the meter in this situation lacks a "field" or continuity, so it does not have the opportunity to exhibit its magnetic properties by opposing or attracting other forces. If I were to remove this one magnet from its case and "test" it, I would find that the outer curvature would be positive and the inner curvature would be negative, and these magnetic forces would be of such magnitude that it would peg the needle in either direction, even on a

stock can magnet. So "in the case" and "out of the case" are two different situations!

In photo #2, merely inserting an armature without wire has changed the conditions, in that now a field is created in that the air gap between the steel laminations and the magnets inner-curvature has established what is called a field or flux density. The smaller the air gap the greater the flux density, and flux density increases



Placing an armature in case, we get a reading.

by the square of the air gap distance.

Picture #2 has stock Russkit 23 blue and white magnets, while the Hemi in photo #3 has the purportedly stronger magnets, yet both indicate almost identical meter readings. The two sets of magnets have different physical dimensions and configurations, which only partly accounts for the differences in performance, but this is another story for another time.

Another reason that these two



It makes a difference where you place the meter. Here is reading at center with Testor's Hemi magnets



If placed off center we get 4+ instead of 5+ as in #3

magnets deflect the meter the same amount is the fact that the Hemi has two metal inner-clips which in effect act as a thicker case, contrasted to Mabuchi's one small bent wire spring.

Picture #4 was taken to illustrate that the highest meter reading is obtained at the center of the magnet and diminished when placed on either side of the center. In the extreme position, as shown in #4, the meter is actually measuring the amount of "stray" magnetic flux induced into the steel screw holding the pot-metal end plate on.

Photo #5 shows a very old Cox motor with the light red and dark blue magnets installed. These magnets were in production prior to



16D with blue and white magnets of stock Mabuchi. Compare this with photo #3.

the stock blue and white variety and were thinner, hence the lower reading indicated because less magnetic mass. Don't confuse this earlier Mabuchi motor with Cox's own present production NASCAR and Super NASCAR motor; there's no relation between them. I simply wish to illustrate the difference in magnetic mass that can and does affect the amount of magnetic case saturation. Incidentally, all of the magnets were remagnetized just prior to picture taking, so all were fully saturated. I should point out also that there is a range separating the strongest and the weakest magnets of the same brand whether it carries a Mabuchi, Atlas, French, or Arco trademark, just as there are fast and slow motors within the same brand name.

Note that the indicator needle is deflecting almost the same amount for the old 13-D, 1/32

scale motor as it was for the old Cox, and actually only about one point less than for the Russkit 23 in photo #3.



13-D motor—the smallest can with their magnets—a most the same as photo #5.

The 13-D motor has a long history of being low on torque and the magnet's extreme thinness has been mainly responsible for their notorious reputation. A glance at the 13-D's low hump-like horsepower curve with a peak of less than .004 H.P. and the motor's efficiency curve skewed way over toward the high rpm's, tells you that the motor lacks strong magnets, so torque is low and rpm's are relatively high.

Now the plot for our story thickens. Photo #7 shows the me-Stock D-26 with stronger magnets than either of previous motors, but note low reading.



ter reading to be about the same for the D-26 as it was for the 13-D in the previous picture, and less than for the 16-D. We all know the D-26 had gobs of torque with 40,000 plus rpm's stock, and the armature diameter is less than 1/10 of an inch greater, so this factor only partially accounts for the greater torque.

So why the low reading? Recall when disassembling the "fat can" that the tabs holding the plastic end cap were such a heck of a job to pry open—you guessed it. Mabuchi went to a heavier case for the D-26 and the magnets are stronger and thicker than in the 16-D motor so there is less magnetic case saturation. The D-26 also has a stronger spring clip between the magnets and a smaller (closer) air gap along with the heavier case. All these factors contribute to better continuity and less magnetic flux going astray as indicated by the meter's low reading. The other side of the coin is that all of the above factors contribute to increasing torque and brakes, while decreasing heat.



Above is a Mura with Magnum 44 magnets, so the index is strong! But does this tell the real story?

To further prove the point, observe the low reading for the Pittman can; less than 3 points. But again, a heavy gauge metal case and lots of torque. The Dynamic G.E. motor is less than 3 points, and this motor has the strongest magnets available in slot racing, for they are oriented barium fer-

rite. In order to hold that reading down to less than 3 points, two heavy gauge metal "U" shaped brackets are required, that envelop over each other.

Contrast these low readings with the Mura motor in #8 with the Indox magnets (Indiana General's trade name) and we observe just what we would expect; a high reading with a high magnetic flux leakage. With a piano wire frame, the whole chassis would become magnetized if the case touches the frame. Mura's Magnum 44's, and the familiar Champion Arco 33's are both Indox, but a slightly different variety.

9.



Pittman can has good strong magnets, but note the reading

But we are not here to compare magnets. The fact is they are G.E. has the oriented magnets—the strongest of all—but note that reading, lowest of all

10.



strong, and I'd better explain that I had to shunt the field meter on this motor for photographic purposes because any of these Indox magnets would bend the needle off the peg, whether they are from Champion or Mura, or whoever.

The meter is simply recording the amount, or more accurately, the relative degree of magnetic case saturation. The meter has a definite value, but not for the purpose it is advertised to be able to perform. It can be useful to indicate when we have brought the magnetic leakage to a minimum, or at least down to a manageable level with the stronger replacement magnets now on the market while retaining your thin Mabuchi case.

11.



Now compare this Hemi with a mild steel shim clipped around the outside of case, with photo #3.

Remember the Testor Hemi in photo #3, was 5+ Now by simply slipping a 20 thousandths mild steel shim over the case the meter reading falls to 2 in picture #11. This same technique of wrapping the same thickness shim around various motors was followed in pictures #12 and #13, and each time the reading on the motor was without the shim. This is not something altogether new. Champion has used double wire clips and horseshoe type shims internally on their 707 motors for just this very purpose of relieving this leakage.

Now to the performance department. The Testor's Mark III Tempest had 45,100 rpm with 1.5

amperes drawn free running by the strobe without the clip. Then, with nothing being changed, I slipped the metal shim over the motor as shown in picture #11. The shim covers the bottom and both curved sides so the bottom hole is covered over. With the shim in place the strobe indicated 44,700 or 400 drop in rpms but the ammeter indicated 1.3—.2 less amps, and the motor actually runs cooler, not hotter, with one hole covered because less amps means less heat. Reason for all

12.



Or the D-13 motor with same shim wrapped around outside of case. Compare with photo #6.

this is spelled *increased efficiency* in my physics book.

Now to some rough figuring about that missing 400 rpm. This motor was geared 8 to a 34, or better than 4 to 1. With the shim over the motor's case, *theoretically* there would be about 100 less rpm at the rear wheels if geared as before. With the increase in torque and efficiency as a result of the metal clip, the gearing was changed to 8 to a 31, and the result was instead of going 38 feet per second on a KF dynamometer without the clip, the car ran 41 feet per second with the gear change and clip in place! The brakes and acceleration were better as stop-watched on the dynamo, and as observed at the local track with the clip installed.

External shimming as with internal shimming to get the magnets closer like everything else can be overdone. It is possible to add



Or the Mura with same thickness shim around case. Quite a drop, from 10 to 4. Why? For an explanation for all this, read on.

so much metal to the outside of the case that you actually draw magnetic flux away from the magnets as was true with the piano wire frame becoming magnetized and adversely affecting performance. So you should approach this modification with a little prudence and common sense. You can wrap 20 and possibly, roughly, up to 40 thousands on the outside of the case after you have predetermined your proper air gap and winding requirements for your track's power supply. If you are using a piano wire frame, insulate the motor from the frame with a thick enough piece of aluminum that you get a reading of zero on the outside of the aluminum. Then adjust the frame members to allow for this extra aluminum insulator.

Field meters are sold by various companies beside Monogram. The one I used here was made by Magniflux Corp., but Sun Instrument Company has one and Simco lists a meter also.

Before I gather too many detractors about restricting the motor's air circulation, look at Champion's new 26D. One side is solid, and Cox's new Super NASCAR motor has no hole on either top or bottom.

So give your motor a good wrapping up, and that about wraps up this subject, so stay cool!

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WHY DOES JACK GARCIA HAVE A HOLE PUNCHER?

It seems that the latest slot car kick is to stock up for tools and equipment at the local stationery store. It seems to work out pretty well too. Among the clever little things you can find browsing the counters of the average five and dime are hole punchers and "Cub"-sized staplers. These team up to be just great for at-the-track body modifications.

For instance the hole puncher can be grabbed up and used to remove all of those horribly deterrent laminar air currents. This means, of course, that instead of making a bunch of ungainly stabs here and there with a dull X-acto blade, you can punch holes all over the tail and fenders of your favorite car and have a piece of neatly-metered swiss cheese. Of course if your McLaren M6A has to be hole punched to relieve all of the air drag rocketing down the backstretch, you haven't helped the strength of your body much. All of those neat little holes have a disastrous effect on body life, particularly in the new lightweights.

Well, they may not last too long, but they sure can go faster. So if the next time I run a picture of a team Dynamic car that looks as though it was done in by a Viet Cong mortar attack, you will know what happened. Your MC&S CMRA squad proved to be quite a bit less sophisticated. The ancient Chan Ford Mark IV

got its entire rear Kamm area removed by a pair of scissors. With the hole punch gang getting rid of all the air, it can be the stapler that comes in to redirect the air that the car has to go through. Naturally the stapler is the most permanent way to secure the cardboard or butyrate spoilers and diaphragms. I just hope that you've not gone too wild on the hole punch kick, and have enough remaining plastic to tack staples into.

PIANO WIRE IS IN

The slot troops are back using piano wire again. But this time it's not to get lighter frames, but to decrease flex and increase strength in heavy frames. The latest plate frames have been far too weak to endure too many dings, even with the brass rod reinforcement. With the advent of the doorhinge and Sloppy Sam body mounts giving your bod the ability to float about and meander while your chassis copes with the corners, you can now afford to remove the flex in your frame with piano wire. In some recent Toma-Chan and Team Dynamic frames, a good deal of piano wire is used in hinged body mount construction because of its lighter weight, higher strength, and more precision fit. Most pro racers are still a bit wary of a mere solder joint to keep piano wire joints intact through rough races, so they wrap the joints in copper wire before soldering for extra strength. These joints hold!

A LESSON IN PLANNED OBSOLESCENCE

Lancer is quick becoming the Ron Mura of the body biz. Their wide line of crystal clear plastic bodies has expanded time and time again, now encompassing regular (about .040") sports, GT, and GP; lightweight (somewhere around .015) sports, GT; super competition (lightweight with slight unscale (?) modifications) Can-Amers, 1:32 scale GT's; and a brace of little 30 cent HO's. However the most interesting thing is that at least two of these lines compete against each other. The case is that if the lightweight

SCALE body appears to be good enough without modifications it will not be changed, but if it comes off rather gross in true scale, the super competition treatment is prescribed. Now the latest release is a sharp little Match in the light weight stuff in scale. This leaves you just a bit less than a nice four inch wheelbase. In addition to the lightweight scale Match, a normal weight scale Match is available. However in the case of the M6A McLaren, Lancer has decided to go for a heavy scale bod and a super competition that really isn't all that much lower, wider, or longer! It appears that Lloyd is just playing with the market, trying to make some plausible evaluations on just what the slot racer wants in a body. If I actually thought I knew, I'd tell him, but as it is I think that the best idea would be for you to write and tell them.

THE HOT REWIND-PART 528

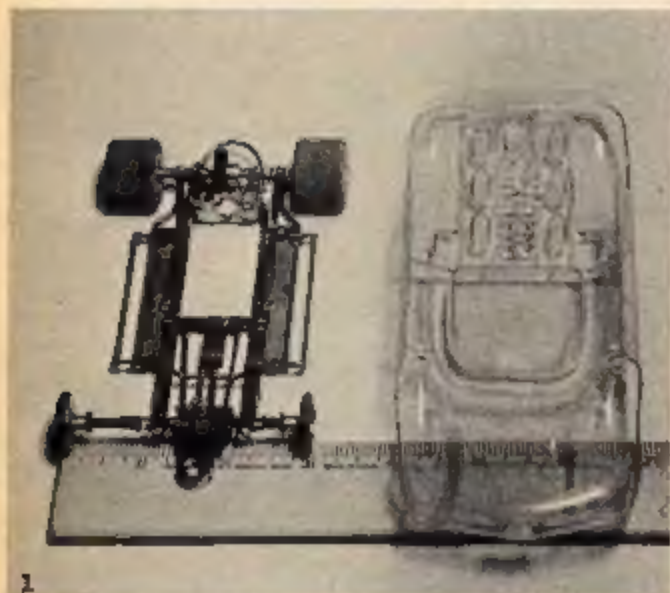
While on the subject of things getting old rather fast, I found that my #27 rewinds were getting waxed right and left by #26 and #25's. It's a pure case of getting "amp-sucked" by lower resistance motors. The new Lenz-Mura can-in-a-can magnet shim really puts torque on tap for fast starts and rapid halts, and it allows even more radical a wind. I'm still testing with some silver-wired (40 or so of #26) cans with Magnums or Arcos in my own cases. Also of interest to motor builders might be that quite a few of the famed Suebe Cans are now running silver wire (or whatever you call silver wire) with polar heat cap thingies and Thorp balancing.



FENDERS WITH A "FLARE"

By Floyd Manly

Get those "doughnuts" in out of the wind!



The wheels are 3 inches wide, but the body is only 2 $\frac{3}{8}$! So what happens?

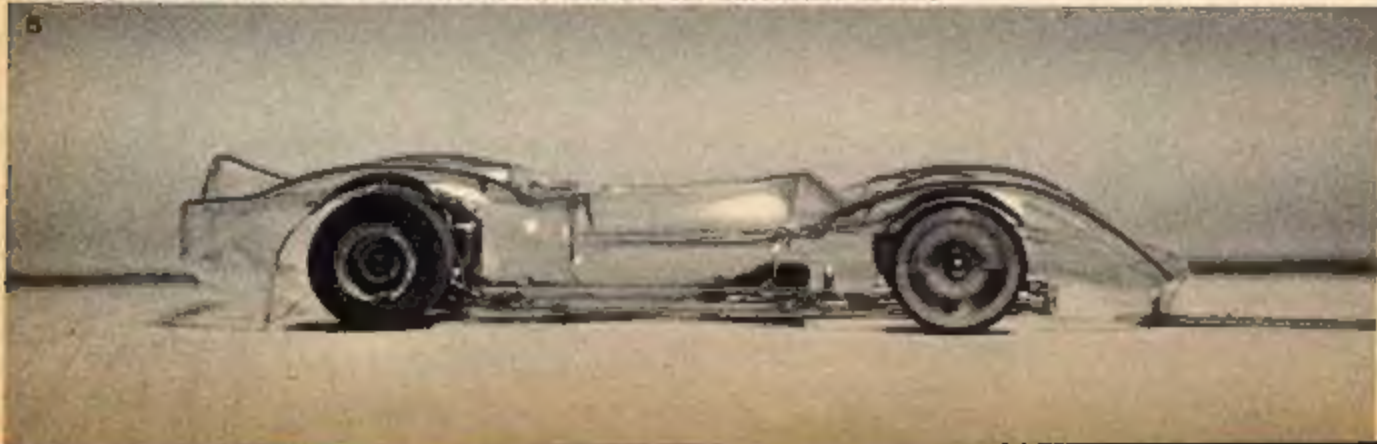
The wheels stick outside the body and ruin the looks. So let's "flare" (Riverside-style) the fenders.



Mark the center line of your wheels with tape. Heat an old 36D (big) "can" motor with a soldering iron to soften the plastic and shape it the way you want. Cool the plastic with a damp rag with the can still in place or it will warp badly. You'll gain more width than you need. Trim to shape.



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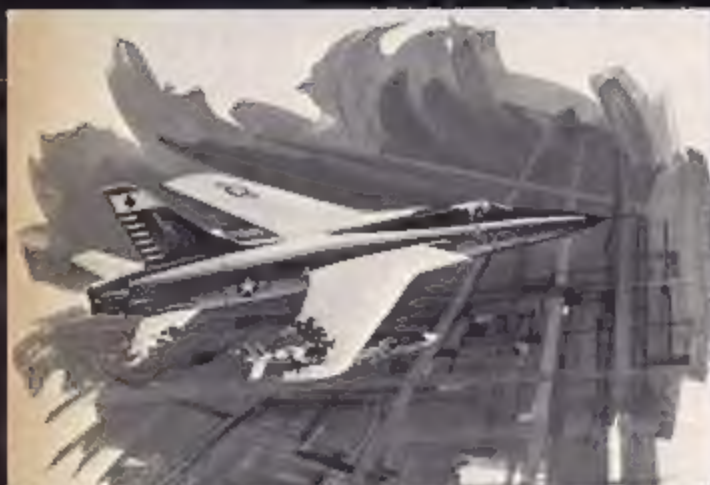
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